MOCK exam 2022

80 Questions and Answers

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Q1: Which of the following is a marker specific for pulmonary Langerhans cell histiocytosis LCH in BAL fluid and tissue biopsy?

1. CD1a
2. Elevated CD4:CD8 ratio
3. Reduced CD4:CD8 ratio
4. CD19
5. CD1a negative

Q2. A 64 year old with COPD diagnosed 15 years ago, with 45 PYs, medication is spiriva, Keppra 250mg BD, citalopram 4mg. PMHx: epilepsy, diet controlled DM. He wants help to quit smoking. Which of the below statements is true?

1. Bupropion 150mg daily would be optimal treatment
2. Vareniciline would be 1st line choice
3. Providing brief advice on risks of smoking, assessing current and previous smoking history is unlikely to help
4. E-cigarette are a safe alternative to smoking
5. Pharmacotherapy and behaviour support in combination offers the best chance of continued smoking cessation

Q3. You are referring a 19 year old to the local severe asthma service they wish you to organise a PFTs tests to ensure an accurate diagnosis. Which of the following tests is a direct airway challenge?

A. Exercise
B. Hypertonic saline challenge
C. Mannitol challenge
D. Methacholine challenge
E. Salbutamol reversibility

Q 4. You receive the FeNO results for a patient in your difficult asthma clinic. The result comes back as 20ppb with evidence of reversibility demonstrated on the spirometry result. What might explain this FeNO result for this patient.

A. Allergic sensitisation and exposure
B. Smoking
C. Rhinovirus
D. Rhinitis and nasal polyposis
E. Beetroot salad

Q5. Which interleukin activates neutrophils in T2 low asthma?

A. IL-4 activates neutrophils
B. IL-5 activates neutrophils
C. IL-9 activates neutrophils
D. IL-13 activates neutrophils
E. IL-17 activates neutrophils

Q6) A 29 year old man is seen in the severe asthma service with recurrent exacerbation. His asthma has been poorly controlled for many years, he is on optimal inhaled therapies, with highest dose ICS/LABA and LAMA, a LTRA, oral prednisolone 7.5mg OD, ex-smoker 15 Pys, Spiro with reversibility was positive. ACT 15. WCC 5.8, eosinophil 0.2, Hb 129, Total Ig 470, RAST positive HDM, cat, tree and grass. Which biologic would be most appropriate to improve his asthma control.

A. Benralizumab
B. Increase oral steroids to 10mg OD and review in 4 weeks
C. Mepolizumab
D. Omalizumab
E. Resilizumab

Q7. One of your COPD patients wishes to travel abroad, in which of the following scenarios is hypoxic challenge testing not required when assessing fitness to fly?

A. 80 year old COPD patient with sats on room air 93%, with pCO_2 at rest of 6.1.
B. 64 year old COPD patient with previous normal HCT and 2 recent admissions to hospital and one requiring NIV for T2RF.
C. 74 year old COPD with who has LTOT 2L
D. 73 year old COPD with LTOT 2L and CBG showing hypercapnia.
E. 44 year old COPD patient with MRC score 3, with SpO_2 84% on 6MW

Q8) A 62-year-old gentleman is referred to the clinic with 1 year history of worsening breathlessness, 20 PYs. His FEV1 is 30% predicted, FVC 60% predicted, TLCO 85% predicted, KCO 90% predicted. mMRC grade 4 and has had one hospital admission with IE COPD in the past year. He is on Braltus 10mcg OD and has recently completed pulmonary rehabilitation about 4 months ago.

What is his GOLD grade?

a) E

b) C

c) A

d) D

e)B

Q9) A 50-year-old gentleman is referred to the Respiratory clinic with progressive breathlessness. He is an ex-smoker, with a 10-pack year history. He has no childhood respiratory illnesses of note and has no atopic tendencies that he is aware of. He was given a trial of salbutamol inhalers with no improvement in his symptoms. CXR is normal and CTPA has ruled out pulmonary embolism/ significant parenchymal disease. Recent blood tests are as follows: Total IgE mildly raised. Aspergillus IgE normal. Eosinophil count 0.4. RAST testing to cat/ dog/ tree pollen normal. RAST to HDM raised. His BMI is 30kg/m2.

Lung function tests show: FEV1 50% predicted, FVC 90% predicted, TLC 70% predicted, TLCO 80% predicted, KCO 90% predicted. Bronchodilator reversibility: Improvement in FEV1 by 150 mls, 10% change. FENO 24

What is the most likely cause for his breathlessness?

a) COPD
b) Asthma
c) Hypersensitivity pneumonitis
d) Allergy induced breathlessness
e) Raised BMI

Q10

A patient with COPD whom you see in clinic is suffering from recurrent exacerbations and you counsel him on starting azithromycin treatment. Which of the following offers optimal practice when commencing this treatment?

a) ECG to assess QTC interval at baseline, and 1 month post starting treatment
b) Liver function tests at baseline, 1 month post starting treatment and 6 months thereafter
c) Counselling regarding potential GI side effects
d) Sputum for AFB at baseline
e) ECG and liver function tests at baseline and then 6 months into treatment

Q11) A patient undergoes a mannitol challenge test and they demonstrate an FEV1 % change of 15% at 30mg of mannitol and which point the test is stopped.

How would you define their airway hyperresponsiveness?

A. Severe
B. Moderate
C. Mild
D. Very severe
E. Normal

Q12)Which of the following is true of FeNO

A. Rhinitis and nasal polyposis lower FeNO results
B. FeNO is activated via IL-4/IL-13
C. Anti-IL5s will always show reduction in a patient FeNO result
D. FeNO is a direct measure of Th-2 inflammation and eosinophilia
E. The NICE cut off for high levels of FeNO is 50

Q13)Which of the following statements is correct

A. A patient 48 year old COPD patient with P02 of ≤7.3 on exertion should start on LTOT 15 hours a day
B. A patient 78 year old COPD patient with polycythaemia and P02 7.4 should start on LTOT 15 hours a day
C. CBG for LTOT assessment can be taken 4 weeks after an exacerbation
D. A patient age 81 with COPD who desaturates on exercise should be considered for ambulatory oxygen
E. In bleomcin or paraquat poisoning saturations of 90-95% are recommended targets.

Q14

MR Jones 70year old is being consider for lung volume reduction surgery, he is on maximal medical therapy triple therapy, 2L LTOT, GOLD grade 4, FEV1 15%, he has required 2 course of antibiotics in last 12 months, 6MWD 200m, HRCT shows fissural integrity, CAT score 12, his RV:TLC is 0.60. He has stopped smoking, he had attended pul rehab. PMHx: epilepsy, AF, HTH, hypercholesterolaemia. Current medication: apixaban, Keppra, ramipil and simvastatin. Which of the following statements is correct.

A. He should be refer for LVRS urgently, based on this information he would be an optimal candidate
B. Referral for lung transplantation would be absolutely contraindicated in this patient.
C. His RV:TLC ratio is not optimal for consideration of LVRS
D. He has 2 factors which would not make him an optimal candidate for LVRS
E. He has 1 factor which would not make him a optimal candidate for LVRS

Q15) Which of the following statements is false

A. Roflumilast is a PDE4 inhibitor
B. Theophylline is not a phosphodiesterase inhibitor
C. Aminophylline enhances the influx of calcium ions
D. Montelukast has been associated with the development of churg-straus syndrome
E. Prednisolone inhibit L-selectin synthesis yes (this leads to demargination of leukocytes into the circulation leading to leukocytosis).

Q16 which of the following inhaled corticosteroids should be delivered once daily.

A. Fluticasone propionate
B. Fluticasone furoate
C. Budesonide
D. Beclomethasone dipropionate
E. Aclindinium bromide

Q17

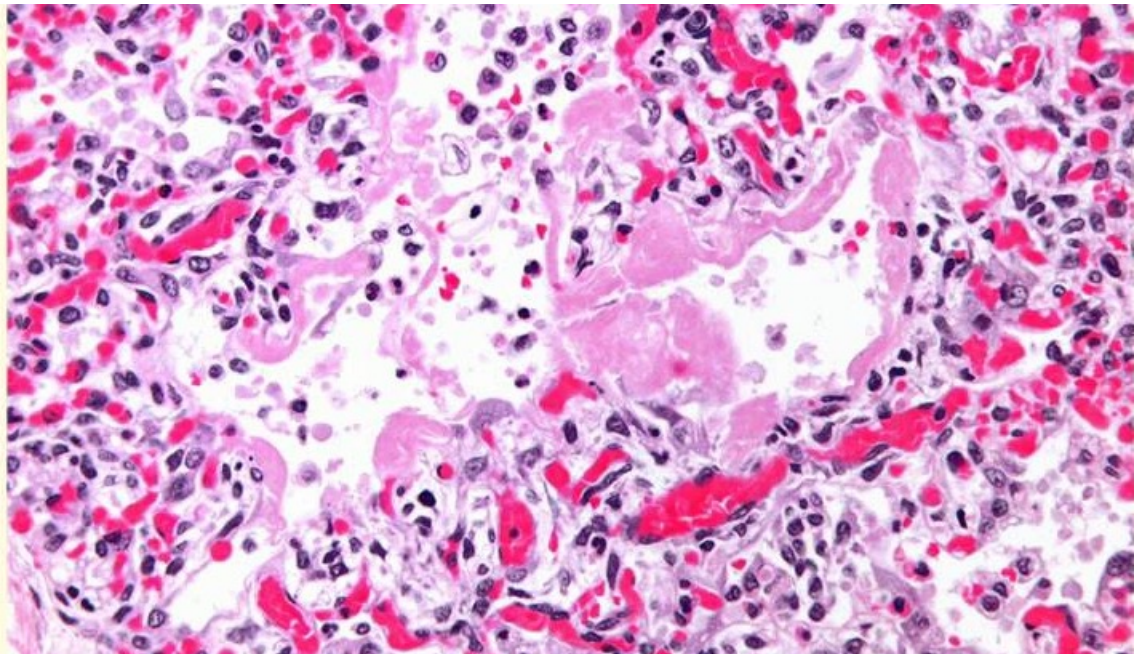
Regarding urgent referral for lung transplantation in patients in IPF which of the follow is not a considered for referral.

A. Worsening hypoxia despite 10L O2
B. pH <7.30 despite optimal NIV
C. Refractory right heart failure
D. Massive haemoptysis despite embolization
E. 10% decline of FVC in 6 months.

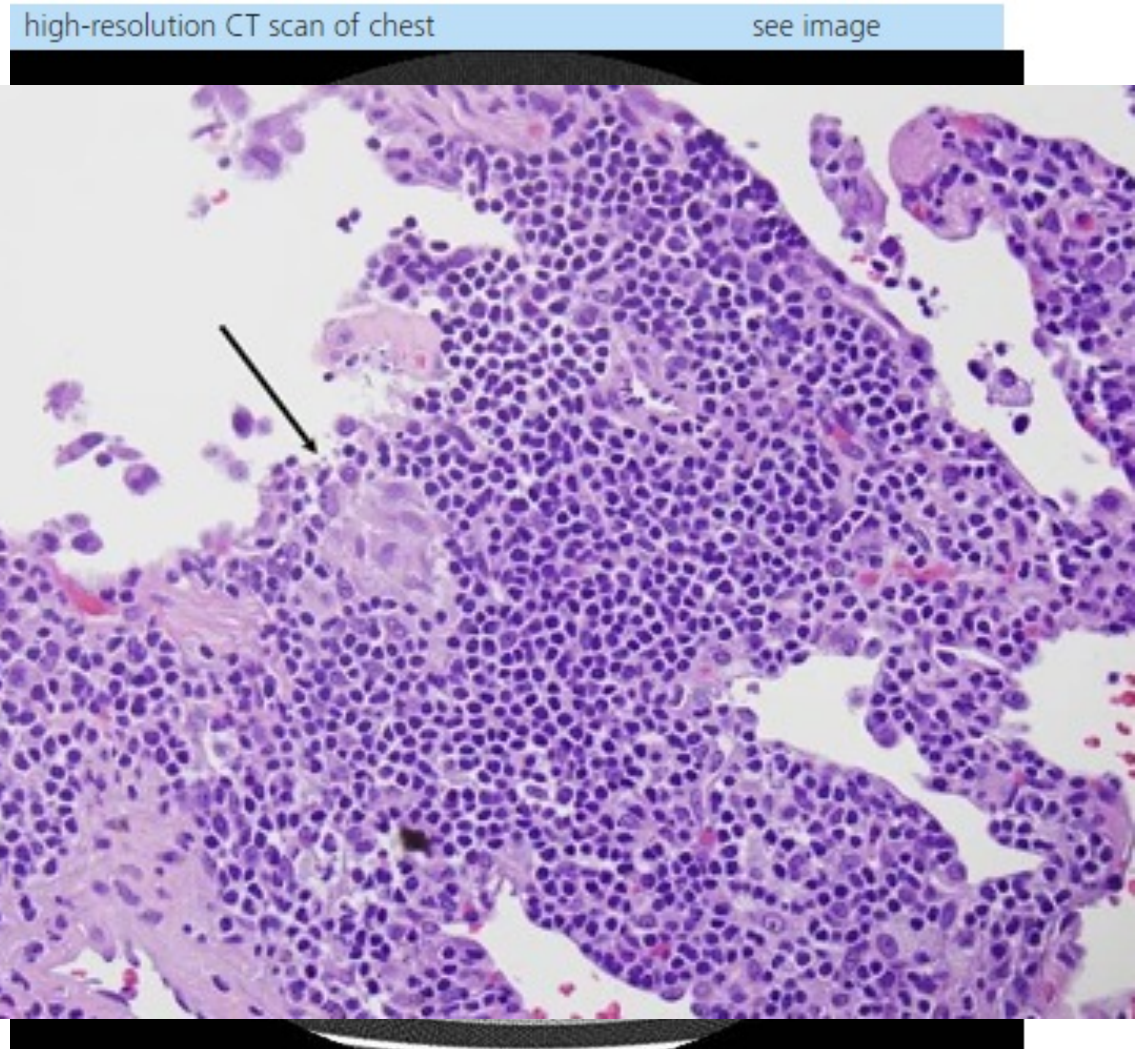
Q18.

A 36 year old post partum female is admitted to hospital acute unwell, with fever, RR36, T1RF, hypotension and acute respiratory distress. She had a prodromal illness for 72 hour prior to admission. She is intubated and ventilated. OE: widespread crackles, CXR bilateral shadowing. She is treated with corticosteroids and antibiotics but despite this she deteriorates and died. A post mortem is conducted and the following histology slide procedure. What is not a key histological finding is characteristic of this underlying lung pathology.

A. Hyaline membranes
B. Interstitial inflammation
C. Alveolar septal thickening.
D. Foamy macrophages
E. Interstitial oedema



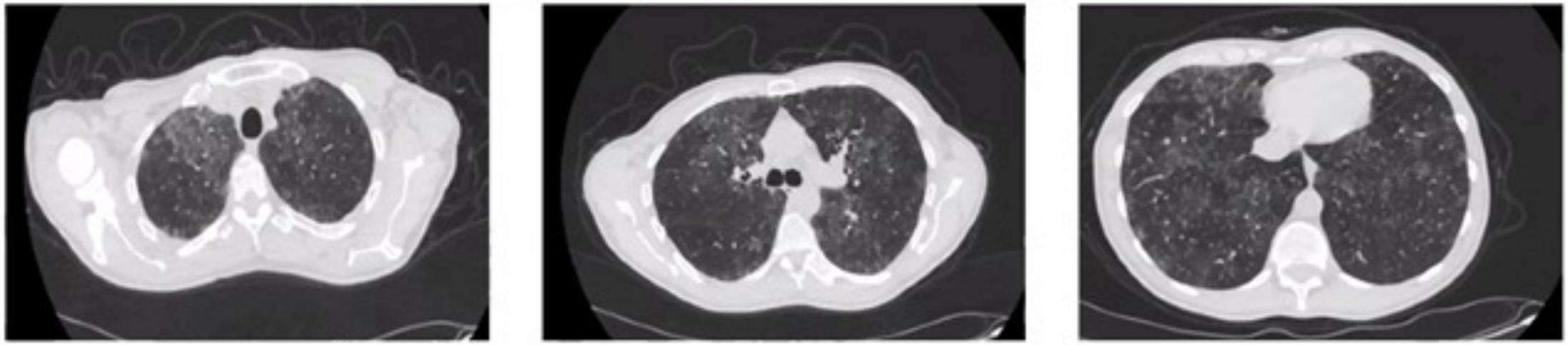
Q19) A 61 year old female, presenting with 6 months of SOBOE., OE bilateral inspiratory squeaks were heard, HRCT and biopsy as shown.



What best describes the pathogenesis of the changes in the lungs?

A. IgG-containing immune complexes are formed.
B. Infiltrating eosinophils damage tissue by releasing enzymes and oxidants
C. Neutrophil oxidative burst causes tissue damage
D. Inhaled antigen leads to IgE mediated inflammation
E. Circulating autoantibiotics cause cell cytotoxicity,

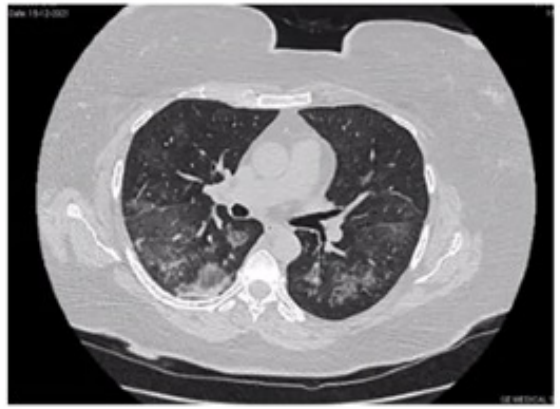
Q20) A 47 year old landscape gardening is seen in you clinic with SOB and cough. On examination there are squarks heard. The patient has a smoking history of 20PYs and is still smoking, no PMHx. Not on any medications. He has no animals and lives in a new build house.

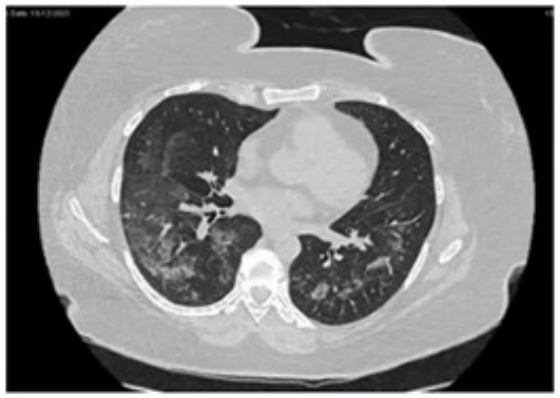


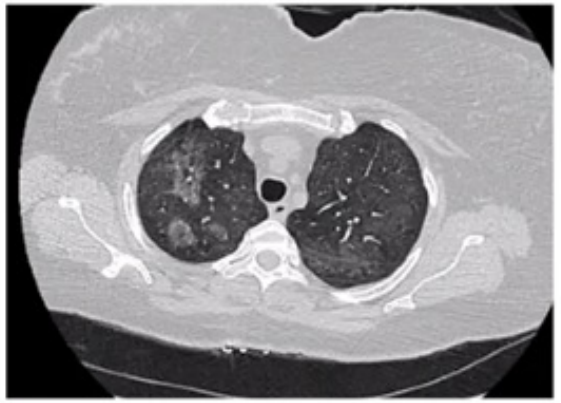
A. Lymphocytes 10%
B. Eosinophils 8%
C. Lymphocytes 40%
D. Neutrophils 5%
E. Eosinophils 25%

Q21) A 61 year old female presents with non-productive cough, SOB, fever, chills, night sweats, fatigue and WL. She has a background of RA, well controlled on methotrexate. She has a couple of admissions for T1RF over a 2 year period in which she responded to treatment well but on this admission she was initially responsive but then relapsed quickly after treatment was stopped. Multiple courses of antibiotics given and no response seen. The following HRCT was done as below. Bloods: Hb 132, WBC 9.8, eosinophils 0.3, CRP 45. O/E bilateral crackles heard. Biopsy and BAL were done. Histologically the biopsy demonstrated buds of granulation tissue (Masson bodies) in alveoli and alveolar ducts, the infiltration of alveolar walls with chronic inflammatory cells and the preservation of alveolar architecture. BAL demonstrated a striking increase of lymphocytes BAL coupled with a CD4/CD8 ratio <0.9. What is the most likely cause of this patients condition?

A. Chronic eosinophilic pneumonia
B. Acute eosinophilic pneumonia
C. Hypersensitivity pneumonitis
D. Cryptogenic organising pneumonia
E. Klebseilla pneumonia.

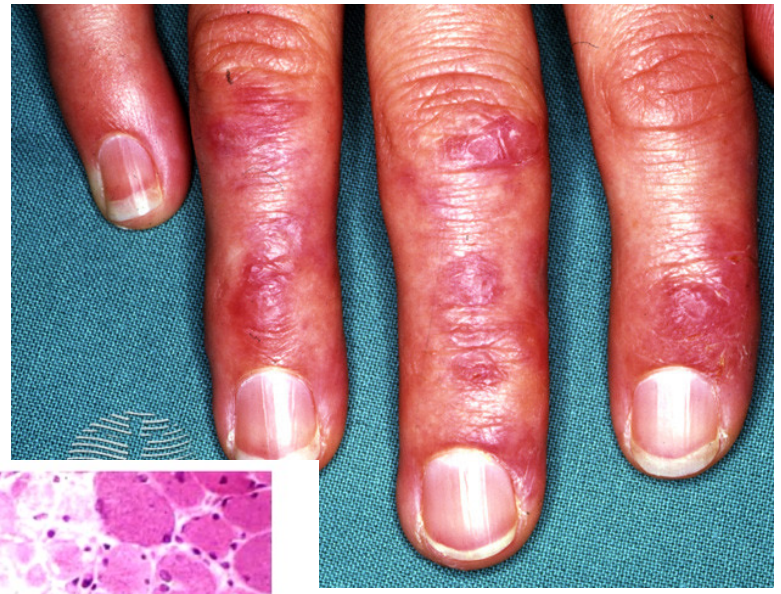


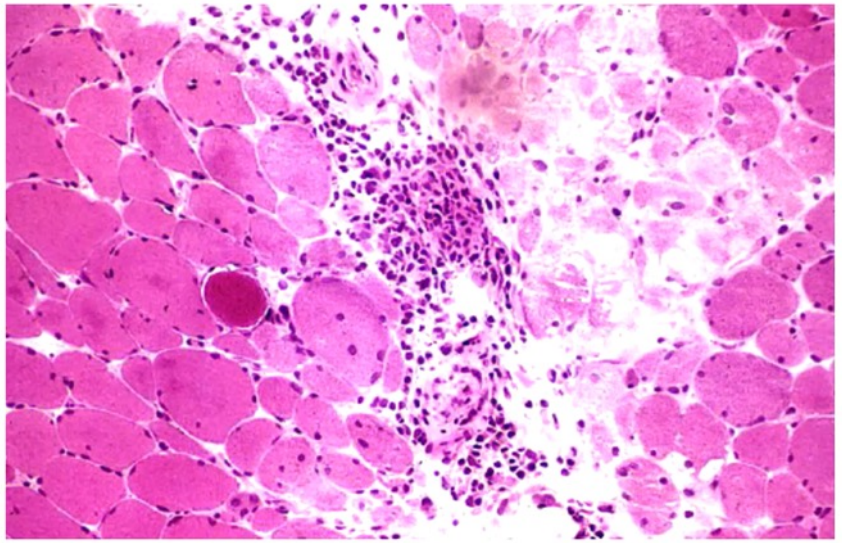




Q22) 54 year old female presents with T2RF requiring NIV, she gives a history of struggling at home for some time with breathlessness, and also being now unable to managed the stairs and needing help to get into the bath and out of a chair. Bloods: CK 315, Hb 94, O/E you find the following changes to her hands, CT: GGO/volume loss/traction bronchiectasis/peribronchovascular predom with subpleural sparing. Autoantibodies are positive for Anti-TIF1-y antibody and negative Anti-Jo-1.
What is the most likely diagnosis to explain her presentation?

A) Myositis
B) Inclusion-body myositis
C) Dermatomyositis
D) Anti-synthetase syndrome
E) Non-specific interstitial pneumonitis

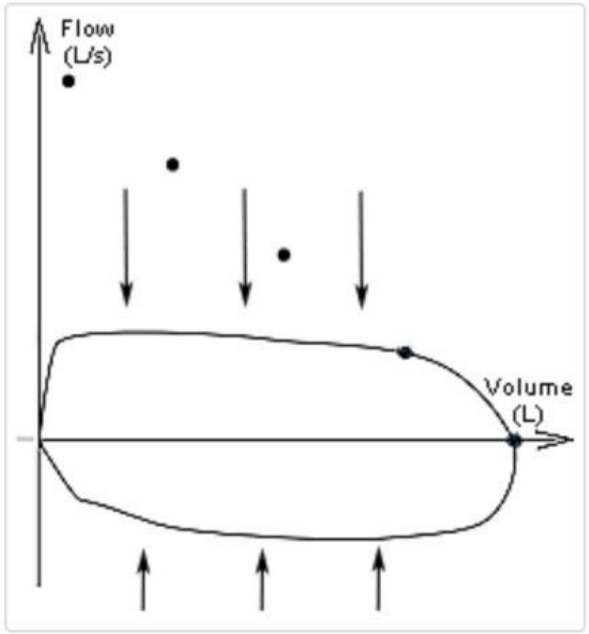




Q23

Question ID #4637

A 35-year-old man is referred to the chest clinic with a 3 month history of exertional dyspnoea. He remarks that his breathing is also very noisy when he is active. Upon review of his pulmonary function tests, you note flattening of the flow volume loop during both inspiration and expiration:



Which of the following may cause this pattern?

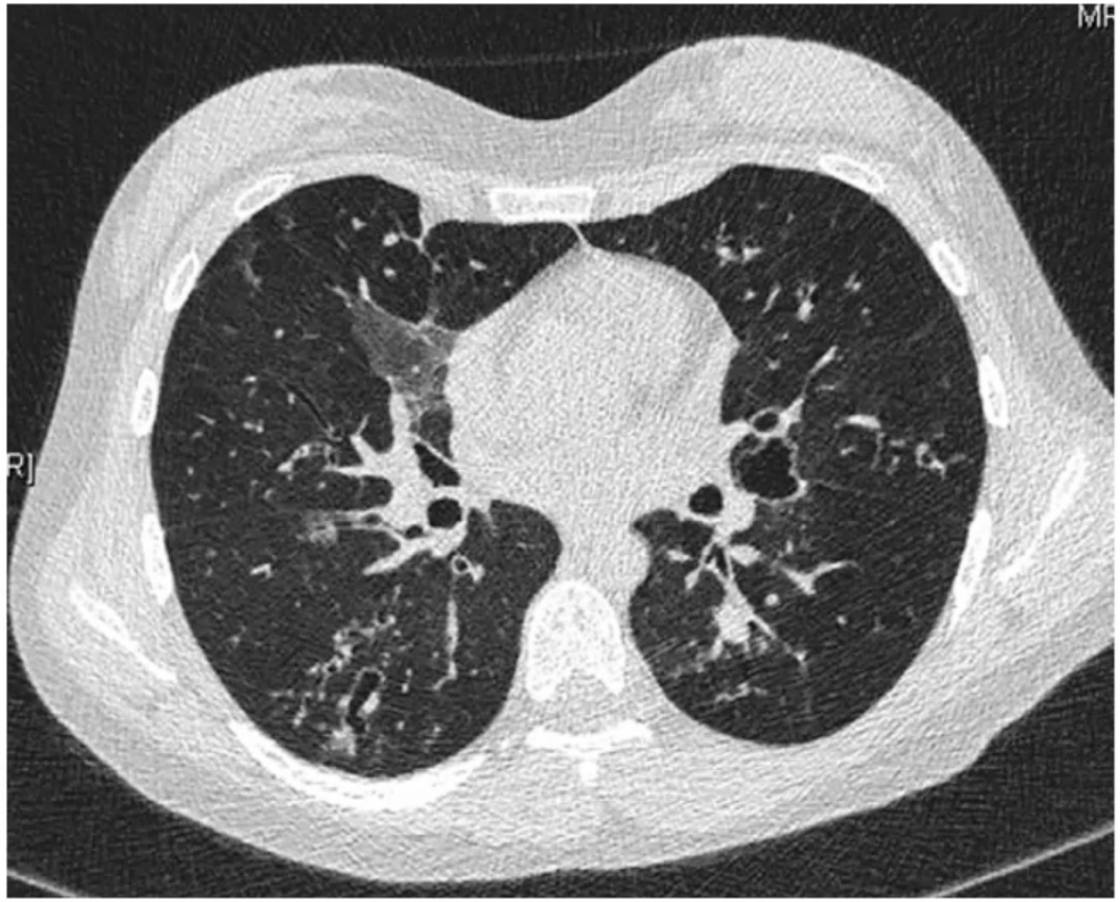
A. Tracheomalacia
B. Tumour of main bronchus
C. Sub-glottic stenosis
D. Polychondritis
E. ILO /vocal cord dysfunction

Q24) 50 year old female known asthma became more SOB. She was diagnosed with ABPA and was started on prednisolone. She did not continue to improve so was started on itraconzaole for 10 days. She began to show signs of improvement. After 11 days she deteriorated again acutely and was taken to hospital with abdo pain low blood pressure and reduced GCS. What is the immediate step in management.

A. Urgent surgical review
B. IV fluids and NBM until CT abdomen mane
C. Back to back nebulisers with Iv Magnesium
D. IV 200mg Hydrocortisone
E. IV Abx

Q25) 25 yr old known asthma has worsening asthma symptoms. You start him on fostair 100/6 Specific IgE to AF is positive with Total IgE 900. You see him clinic 2 weeks later and he has worsening symptoms so you increase his fostair to 200/6 2puffs BD and his TIgE is 1000. His eosinophils have also raised and Af IgG is positive. He has HRCT see below. Is normal. What is his diagnosis?

A. Severe asthma
B. SAFS severe asthma with fungal sensitivities.
C. ABPA - Bronchiectasis
D. ABPA – Serological
E. Chronic eosinophilic pneumonia.



Q26) Which of the following is not an indication for commencing cyclophosphamide in Eosinophilic granulomatosis with polyangiitis

A. Glomerulonephritis
B. Cardiac involvement
C. CNS involvement
D. Extensive treatment with prednisolone which has controlled the disease
E. Should be use 1st line when diagnosis is confirmed prior to prednisolone

Q 27) What is the mode of action of Nintedanib?

A. TGF B inhibitor
B. Tyrosine kinase inhibitor
C. Anaplastic lymphoma kinase inhibitor
D. IL 3 inhibitor
E. MOA is unknown

Q28)How soon after starting treatment for smear positive fully sensitive TB can you fly?

A. Can fly straight away as long as they wear a mask

B. After 3 smear negative samples taken on separate days

C. After 2 weeks so long as they are improving, and no concerns about drug resistance/adherence.

D. Once they have completed treatment and are culture negative

E. Once they have completed treatment and have a letter from a respiratory physician.

Q29) 30 year old male on RIPE for TB develops hepatotoxicity after 2 weeks of treatment, on no other medication or past medical history and has TB meds stopped. Which would be an appropriate re-introduction regime according to the NICE guidelines?

A. Restart RHZE as normal

B. Start rifampicin at half dose, then add in isoniazid half dose at 1 week, then increase rifampicin to full dose, if remains well then increase H and then add in ZE over a further 2 weeks.

C. Start E and R, sequentially reintroduce at full dose Z and H, so are on all meds within 10days.

D. Stop R, slowly restart HZE over 3 weeks

E. Stop treatment for 1 month, then slowly reintroduce the medications.

Q30)A 42 year old female from Ukraine is pick on the UK screening programme to have fully sensitive TB and is on RIPE treatment. At her review who notice o/e and further USS scan she has develops new lymphadenopathy. How would you alter their treatment?

A. Extend treatment by 4 months

B. Add in clarithromycin

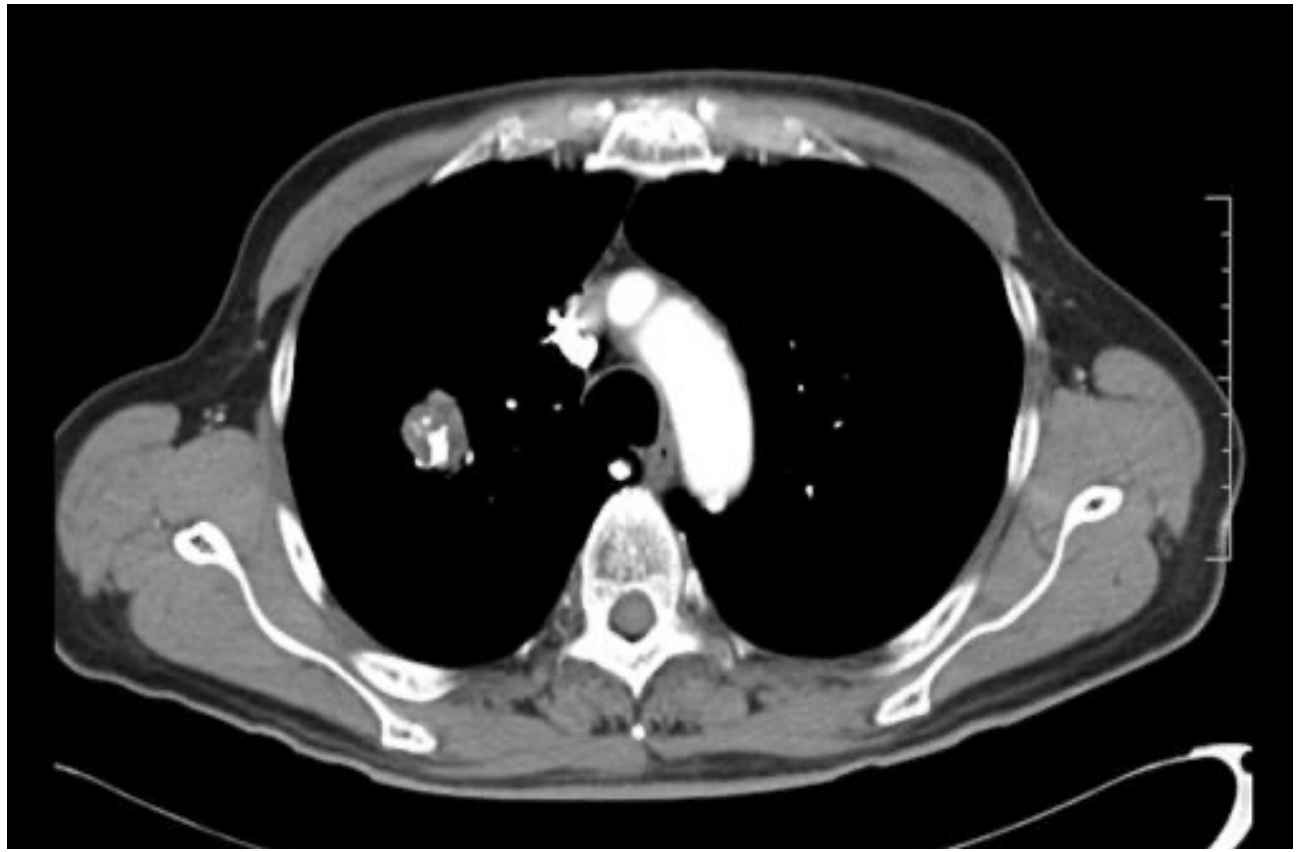
C. Stop treatment and re-culture

D. Continue current treatment

E. Treat as MDR-TB

Q 31. A 55-year-old male undergoes a CT chest to further investigate a chronic cough (see below). What follow up is required?

a) No follow up required
b) Repeat CT chest at 3 months
c) Repeat CT in 1 year
d) Refer for biopsy
e) Refer for PET scan



Q 32

A 55-year-old gentleman presents with cough and breathlessness. CT chest shows a 2 cm lesion in the right upper lobe, with accompanying subcarinal lymphadenopathy of 11mm and enlarged right hilar LNs of 12mm. What is the most appropriate next investigation?

a) PET-CT
b) Lung function tests
c) EBUS- FNA of nodes
d) CT head
e) CT-guided biopsy of lesion

Q 33

A 60-year-old gentleman is referred with a right lower lobe lesion on CT chest. It is 2cm in size, with no local invasion. There is no evidence of any pleural effusions or distant metastases. Right hilar lymphadenopathy with hilar nodes measuring up to 12mm are noted. Biopsy of the right hilar lymph node shows features of adenocarcinoma. He is an ex-smoker with a 10-pack year history. He usually lives alone and is a retired accountant. What would be the most appropriate treatment option?

a) Chemotherapy alone
b) Chemo-radiotherapy combination
c) Surgery alone
d) Surgery with adjuvant chemotherapy
e) Neoadjuvant chemotherapy followed by surgery

Q34

Which of the following is **not** true about first-line pembrolizumab monotherapy?

a) It is used for untreated PDL1 positive tumours metastatic NSCLC
b) It requires the tumour to express at PDL1 at at least 50%
c) Patients have to be negative for EGFR mutations
d) Patients should also be positive for ALK1 mutations
e) Pembrolizumab should be stopped at 2 years of uninterrupted treatment (or earlier if disease progression)

Q 35

What tumour mutation is crizotinib most useful for?

a) PDL1 positive tumours
b) ALK positive tumours
c) EGFR Positive tumours
d) ROS1 positive tumours
e) TP53 mutation

Q36

A 70-year-old gentleman is diagnosed with a 3cm right upper lobe tumour, with involvement of the right sided mediastinal lymph nodes. Biopsy has shown small cell lung cancer. What is the optimal first line treatment?

a) Chemo-radiotherapy

b) Cisplatin-based chemotherapy alone

c) Surgical resection

d) Radiotherapy alone

e) Erlotinib

Q37

An 80-year-old gentleman presents to ED with worsening constipation and confusion. Blood tests a Na of 135, K 4.5, Urea 6.5 Cr 90 LFTs normal Calcium 3.0 PTHrP raised. Vitamin D normal. CT head shows volume loss but no acute features. CXR shows a RLL lesion, confirmed on CT chest and thought likely to be malignant in nature. What is the most likely tumour type?

a) Squamous cell carcinoma
b) Small cell carcinoma
c) Carcinoid tumour
d) Adenocarcinoma
e) Large cell carcinoma

Q 38

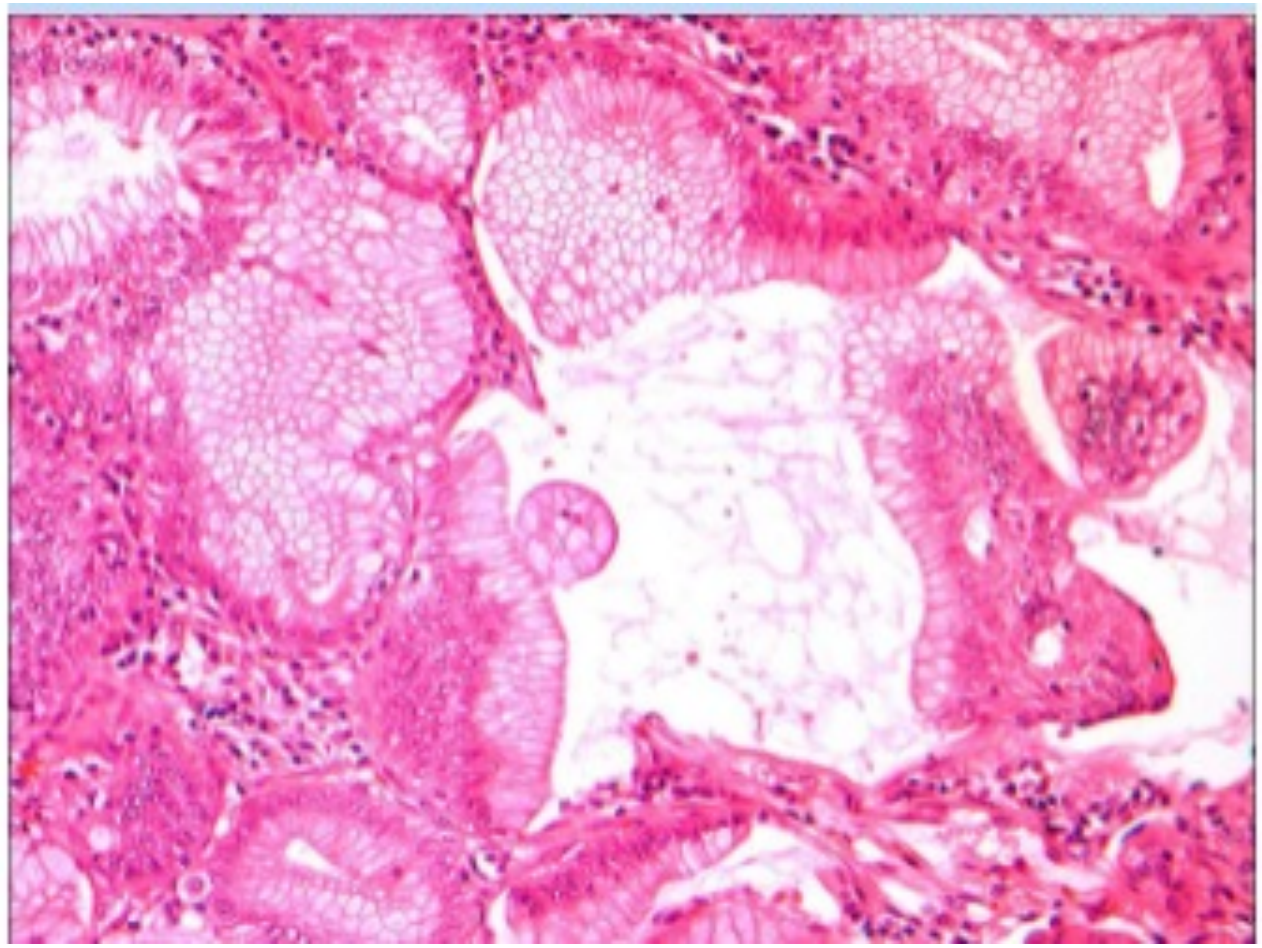
A 60-year-old gentleman is referred to the Neurologists with progressive muscle weakness, predominantly affecting his legs. Occasionally, he finds it difficult climbing stairs, but this often improves with exercise. He has also noted increased breathlessness, chest tightness and a hoarse voice. He has no other medical history of note. He recently had a viral illness and suffered from short-lived GI symptoms. On examination, palpable supraclavicular lymph nodes were noted. CT chest revealed a 5cm RML lesion with bilateral mediastinal lymphadenopathy. CT abdomen shows a lesion in the liver. He has a PS of 1 currently.

What test is likely to determine the aetiology of his leg symptoms?

a) MRI head
b) Voltage gated calcium channel antibody
c) Anti-acetylcholine receptor antibodies
d) Electromyography
e) Nerve conduction studies

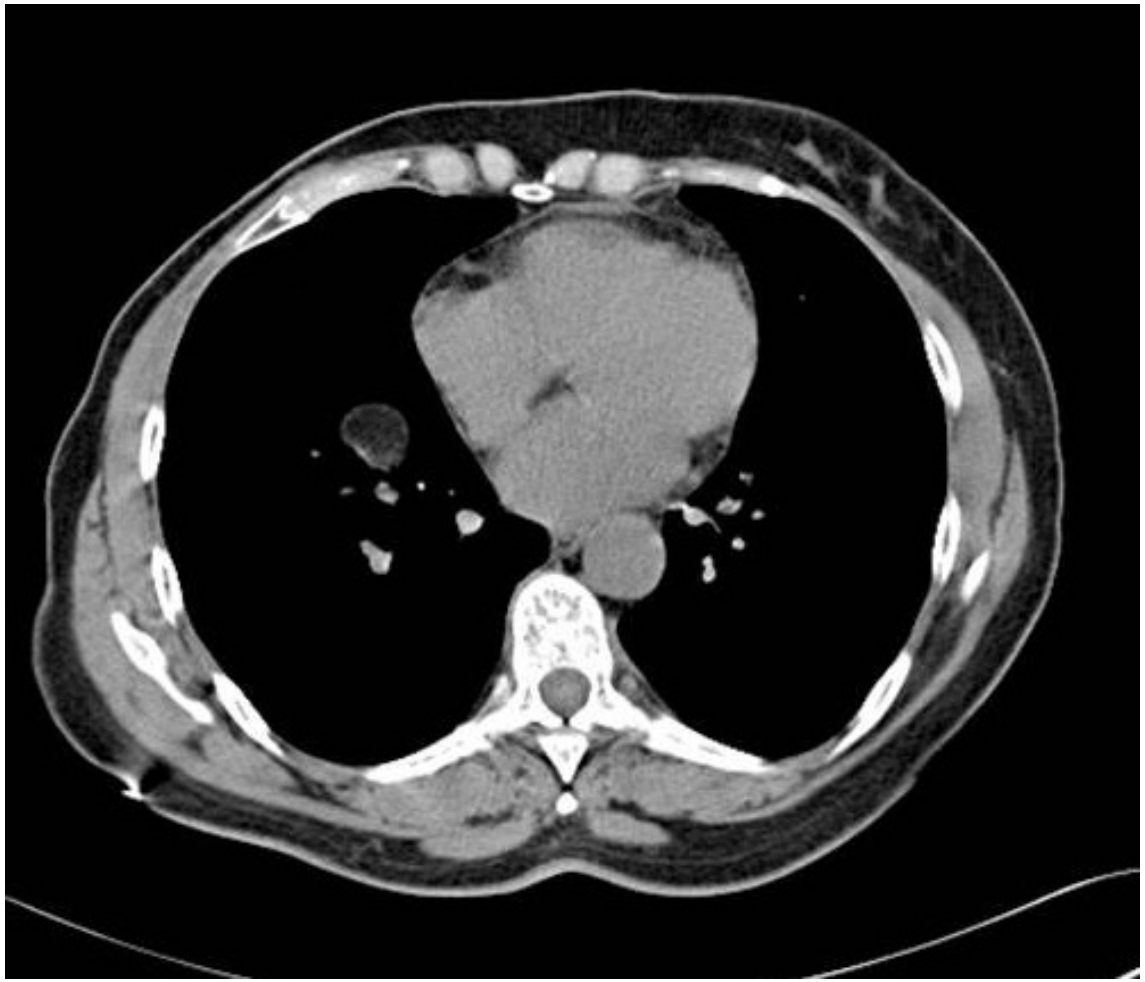
Q39) A 59-year-old woman attended the outpatient clinic with a 6-month history of cough. She had no previous illnesses of note. She had a 10 pack-year smoking history, and had given up 25 years previously. Her husband was a heavy smoker. The following biopsy is taken endobronchially. This shows typical histology for what lung condition?

A. Small cell carcinoma
B. Large Cell Carcinoma
C. Cryptogenic organising pneumonia
D. Lepidic Adenocarcinoma
E. Sarcoidosis



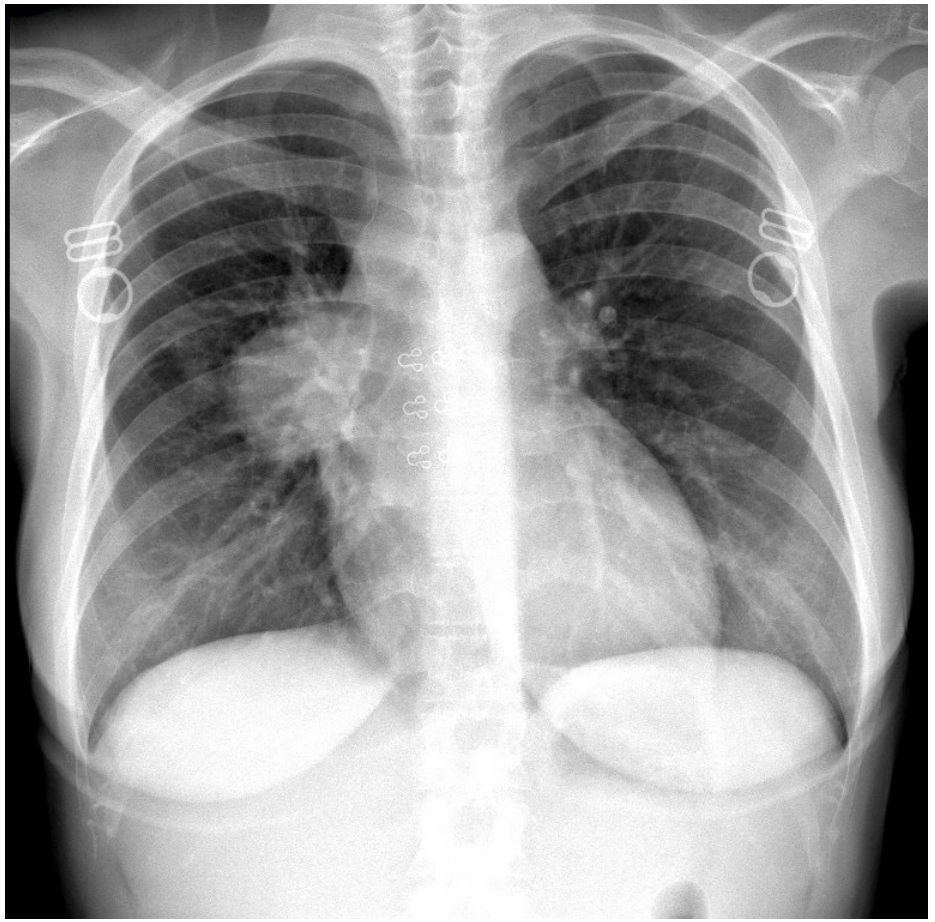
Q40) A 82 year old male presented with a cough, and the following CT scan. What is the most likely diagnosis

A. Lipoma
B. hamartoma
C. Malignant carcinoma
D. Carcinoid tumour
E. Bronchogenic cyst



Q41

48 year old female present with WL, and fatigue. What is the most likely cause of this CXR and extra point what the radiological sign?

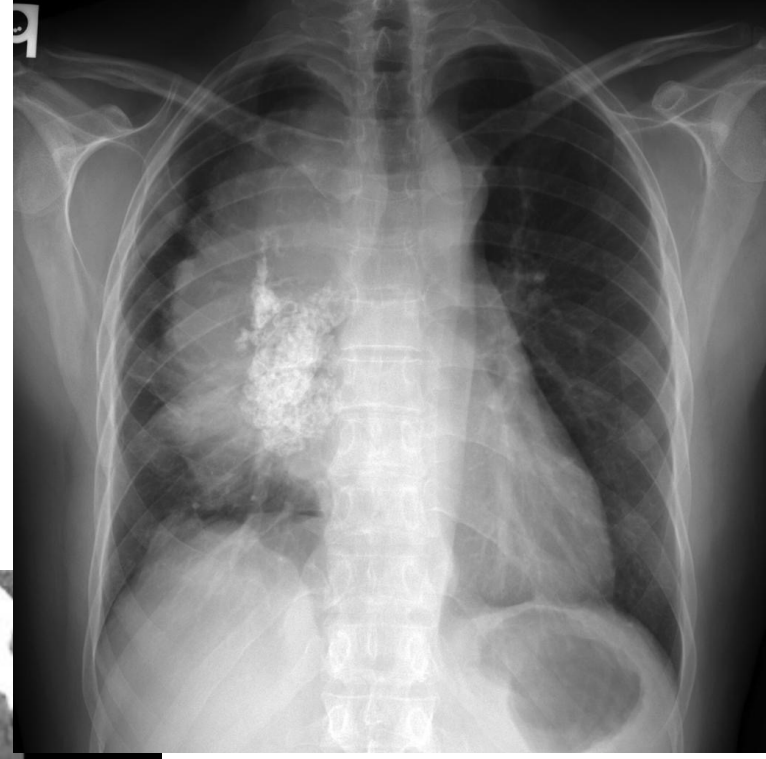


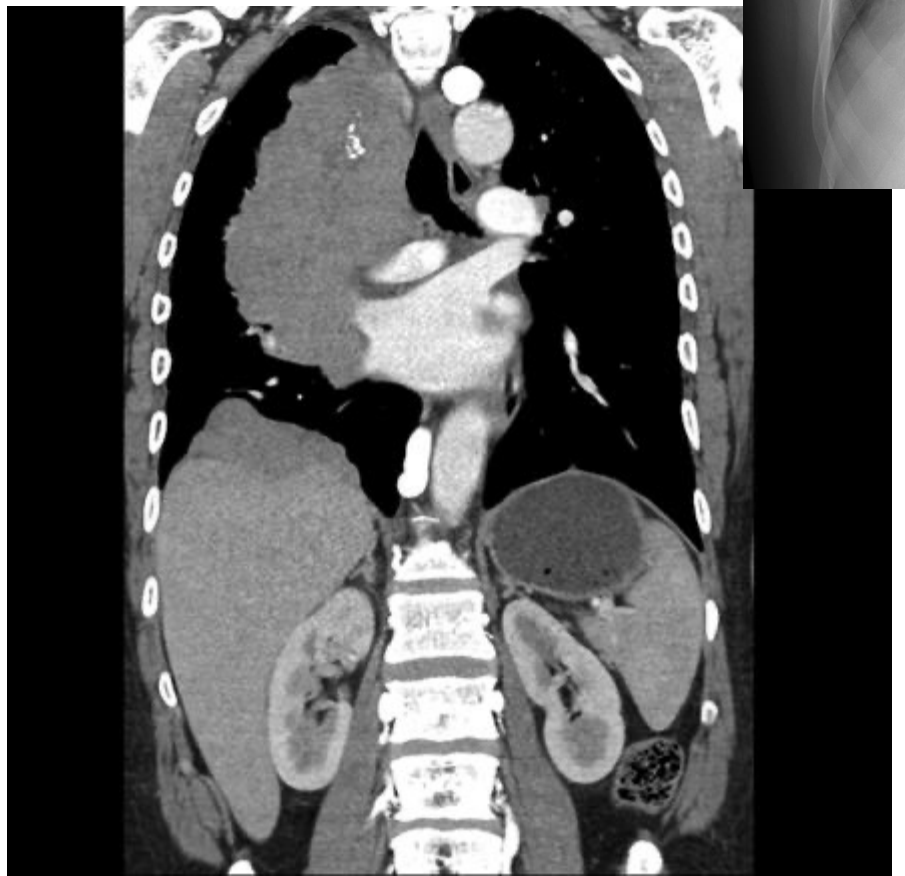
A. Hodgkin's lymphoma
B. Bronchogenic carcinoma
C. Sarcoidosis
D. Thoracic aortic aneurysm
E. Lipoma

Q42

43 year old female presents, history of myasthenia. Patient presents with SVCO with cough for 3 months. Following CT and CXR. What's the diagnosis?

A. Thyroid goitre
B. Thymic hyperplasia
C. Lymphoma
D. Mediastinal germ cell tumour
E. Thymoma





Q 43

A 55year old is brought to A&E following a RTA . He undergoes trauma CT scan which picks up a 5mm nodule sub solid nodule in the right upper lobe. He has 5 pyh of smoking. How will you manage him?

- 1) Follow up scan in 3 months
- 2) Follow up scan in 12 months
- 3) PET CT
- 4) Brocks score
- 5) Discharge

Q44

A 40 year old has a CT scan of abdomen for ?? Pancreatitis. This scan picks up left lower lobe subpleural triangular opacity measuring of 7mm. Next step

- 1) Brocks score
- 2) CT scan in 12 months
- 3) CT biopsy
- 4) Discharge
- 5) CT scan in 3 months

Q45

You see a 55 year old in RALC with new right upper lobe mass measuring 3cm and enlarged right hilar and subcarinal node along with atelectasis and right sided pleural effusion. Stage?

- 1) T2N1M0
- 2) T2N2M1A
- 3) T3N2M0
- 4) T1N1M1A
- 5) T4N2M1A

Q46

What size of tumour should make u consider post operative adjuvant chemotherapy?

1. 2cm
2. 3cm
3. 4cm
4. 5cm
5. 6cm

Q47

A 65-year-old lady with squamous cell carcinoma is due to undergo a curative right lower lobe lobectomy.

She has a preoperative FEV1 of 1.9 L.

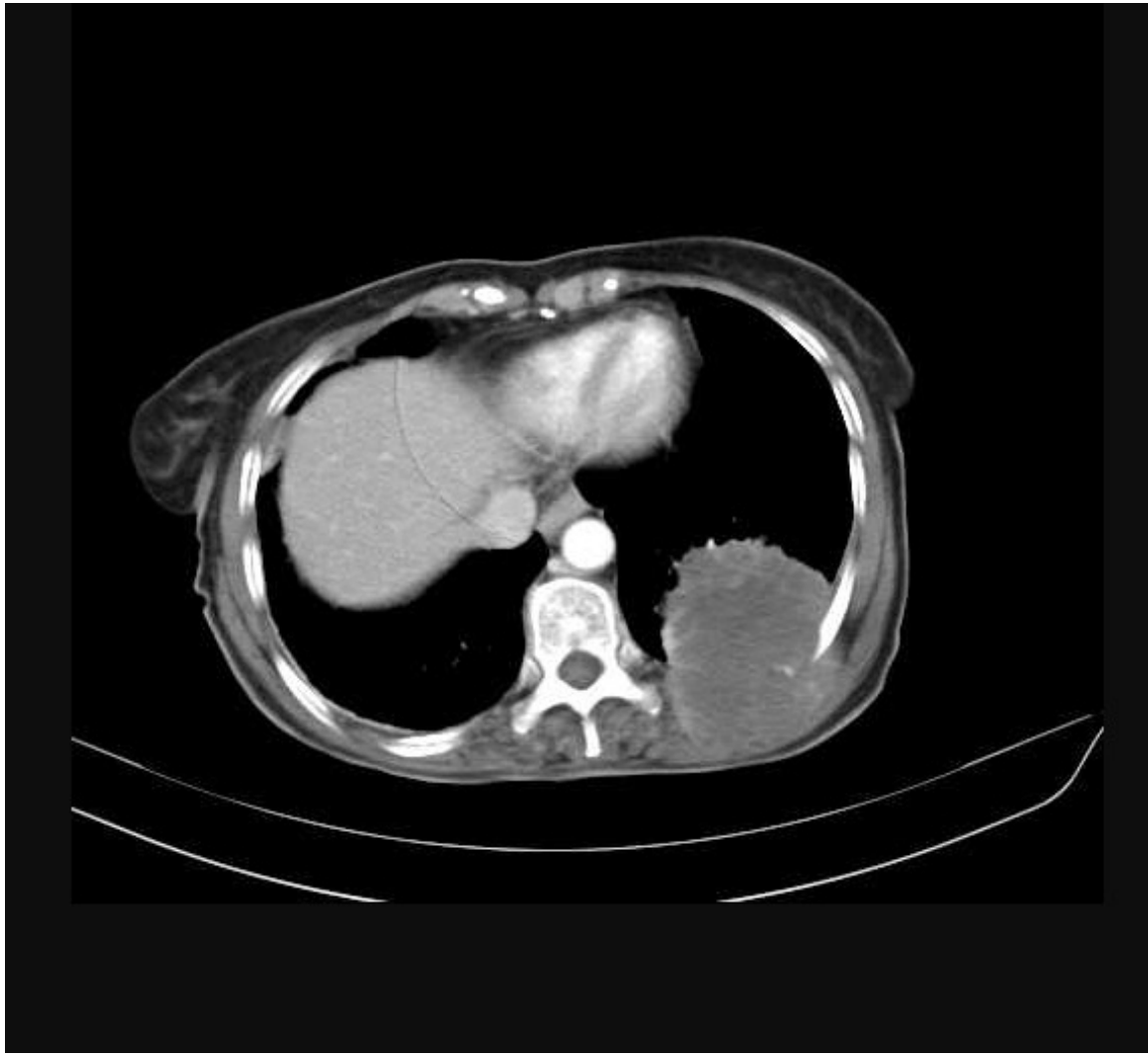
What is her predicted postoperative FEV1?

A. 1.0 L
B. 1.2 L
C. 1.4 L
D. 1.5 L
E. 1.6 L

Q48

A 76 year old PS 1 male, with a smoking history of 50 PYs presents with pleuritic chest pain and the following CT scan is completed showing a 6.5cm lesion. EBUS demonstrated hilar and intrapulmonary lymph nodes only to be positive. No distant metastasis are seen. What would the most appropriate staging be?

1. **T3N2M0**
2. **T4N2M0**
3. **T3N1M0**
4. **T4N1M0**
5. **T2N2M1a**



Q49

A 54 year old female of South Korean decent who has never smoked is diagnosed with a T1N0M0 lung cancer. Tumours markers are sent. Which is most like to be true for this patient?

1. EGFR mutations are more common in lung cancers affecting females, never smokers, and those of Asian-Pacific descent

2. This cancer is most likely a small cell tumour.

2. EGFR mutations are more common in lung cancers affecting male, smokers, and those of African descent

3. This lung cancer is most likely a carcinoid tumour

Q50

- What is the first line systemic anti-cancer therapy SACT for *non squamous* advanced NSCLC with >50% PDL1 expression and no gene mutation or fusion protein?

1. Crizotinib
2. Osimertinib
3. Pemetrexed/Carboplatin
4. Pembrolizumab
5. Pembrolizumab and Pemetrexed

Q51

KJ has progressive motor neurone disease with very limited upper arm movement, and now using a motorised wheelchair. He lives alone, and has a QDS package of care, and has stated he does not want to "go into a home". He has been using his NIV via a nasal mask for 6 months. He has had overnight oximetry and a CBG performed. The oximetry demonstrates a saw-tooth type pattern, and mean saturations are 87%. The CBG done the morning of clinic shows: pH 7.41, pCO2 6.1, pO2 8.3, HCO3- 32. You review his NIV machine and it tells you he has a tidal volume of 850, leak of 70. His usage is excellent at 9hours per night. He is on EPAP 6 and IPAP 18. Which would be the best first line intervention to further optimise his ventilation?

A: Increase his EPAP to 8, and IPAP to 20, and review in 2 weeks with repeat overnight oximetry.

B: Change him to a full-face mask, and review in 2 weeks with repeat overnight oximetry.

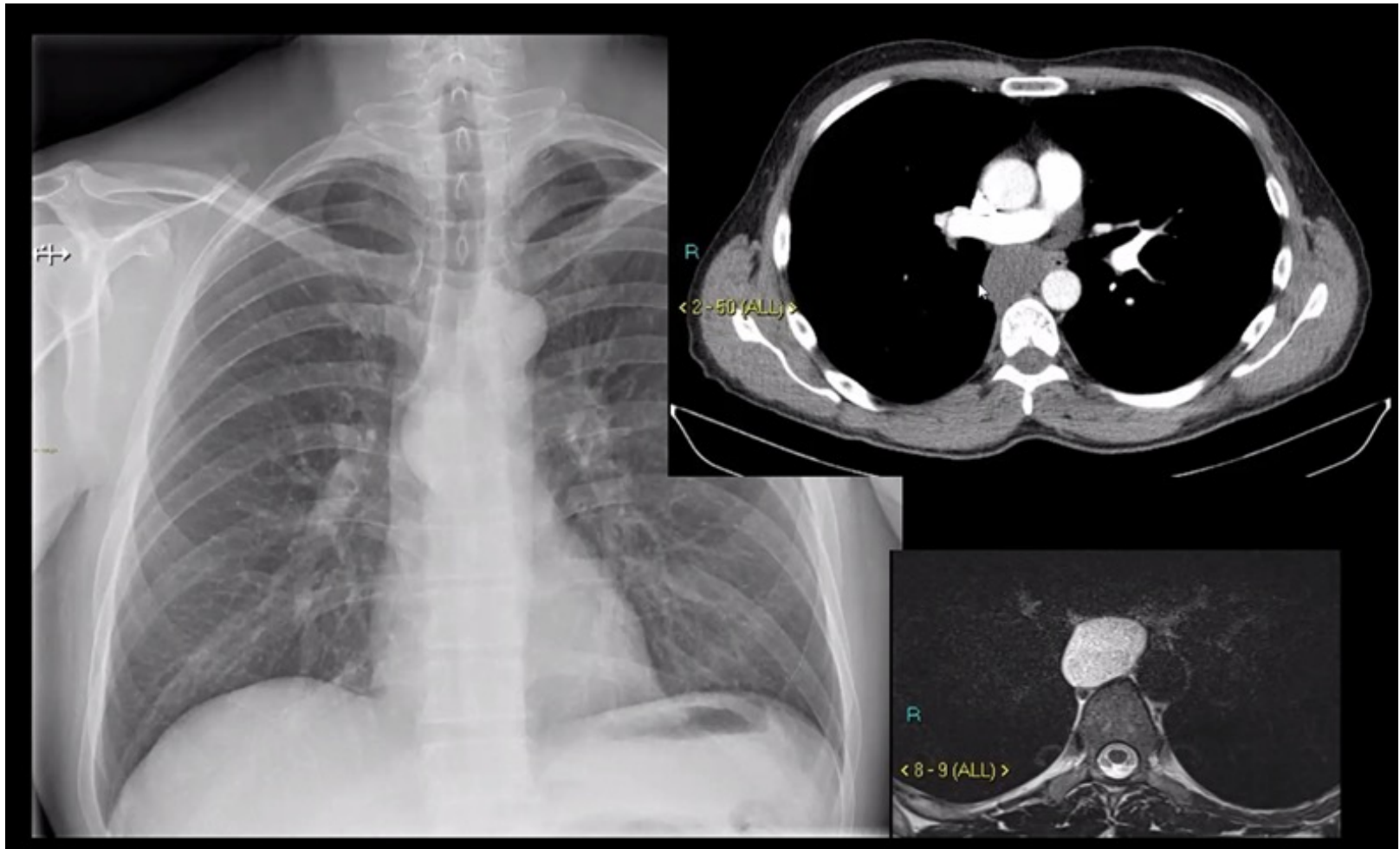
C: Add in a chinstrap to his nasal mask and review in 2 weeks with repeat overnight oximetry.

D: Admit to hospital to optimise his NIV.

E: Add entrained oxygen at 2L/minute, and review in 2 weeks with repeat overnight oximetry.

Q52) A 32 year patient from sub saharian African has a CXR as part of an occupational risk assessment prior to starting for a private health care company. What's the most likely cause of the finding found on subsequent CT imaging ?

A. Bronchogenic cyst
B. Aortic aneurysm
C. Neuroblastoma
D. Germ cell tumour
E. Lymphoma



Q53

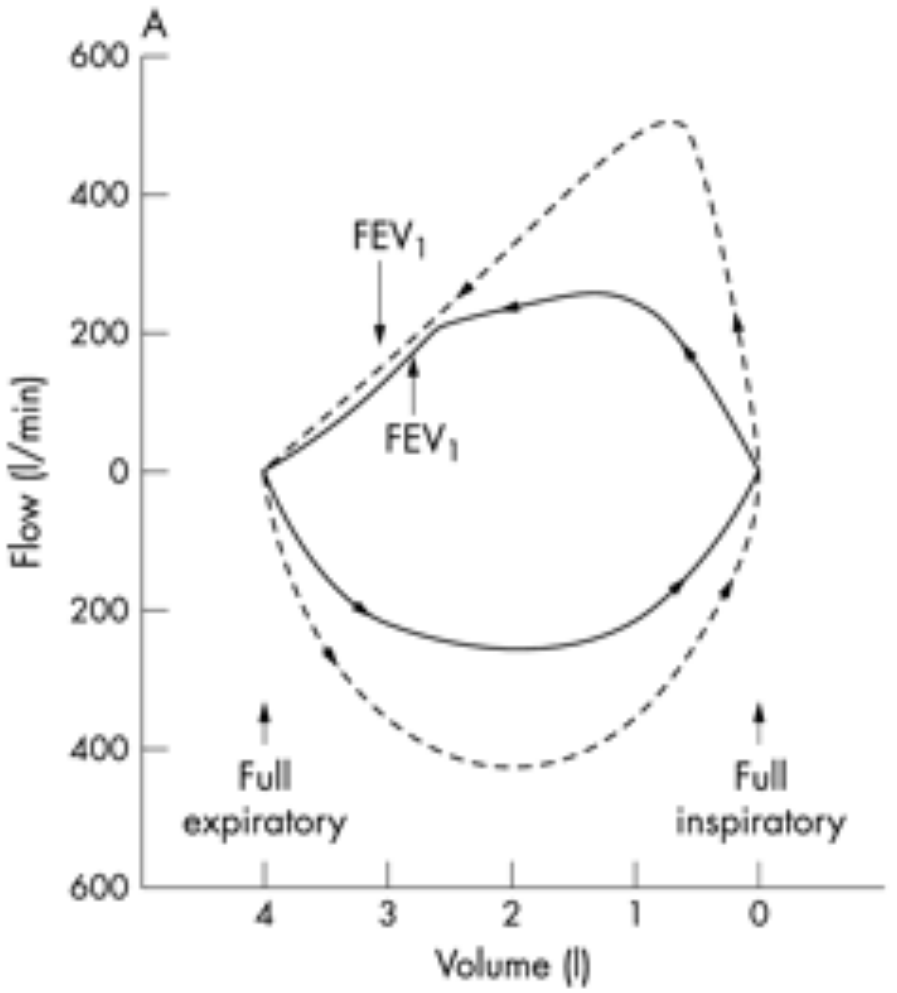
in unilateral diaphragmatic weakness which of the following is normal?

A. Maximal expiratory pressure
B. Maximal inspiratory pressure
C. Sniff nasal inspiratory pressure
D. VC in the sitting position
E. VC in the supine position

Q54) Patient presents with noisy breathing and SOB with WL. They are diagnosed with fixed airflow obstruction and you fear tracheal obstruction.

What is the most accurate Empey index for this patient?

A. >10%
B. >5%
C. <5%
D. <10%



Q55

A 24 year nurse who works on the paeds ward, history of asthma, she smokes socially, presents to A&E with SOB, she is tachypnoeic, OE lungs are clear. RR is 28, BP 100/60, HR 101. You do a ABG. What is her alveolar-arterial oxygen gradient (in kPa)

A. 4.0-6.0
B. 6.1-8.0
C. 8.1-10.5
D. 10.6-12.0
E. 12.1-14

ABG

PO2 7.9 kPa (11.3-12.6)
PCO2 4 kPa (4.7-6)
pH 7.49
HCO3 22

Q56

In a normal subject at the end of a tidal breath (functional residual capacity) with their mouth open - what is the normal alveolar pressure (Palv), intrapleural pressure (Ppl) and transmural pressure? (Ptm)

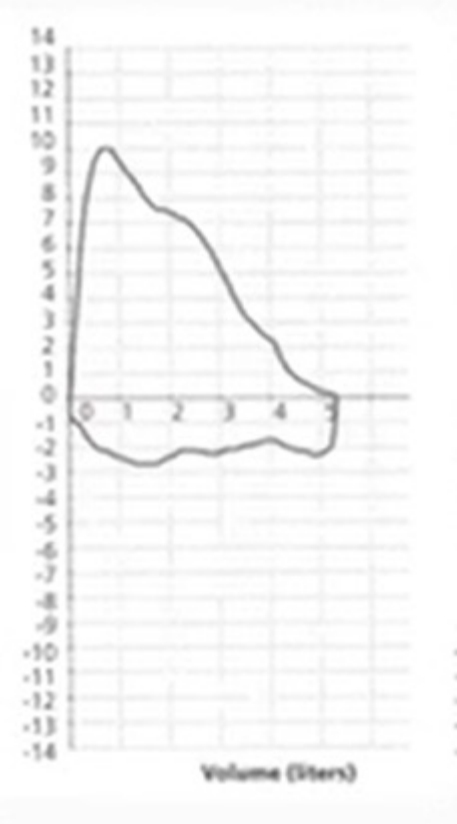
A. Palv = 0cm/H20 Ppl = -7 cm/H20 Ptm = +7cm/H20
B. Palv = 7cm/H20 Ppl = 0 cm/H20 Ptm = +10cm/H20
C. Palv = 10cm/H20 Ppl = -7 cm/H20 Ptm = 0cm/H20
D. Palv = 0cm/H20 PPl -10 cm/H20 Ptm = - 10cm/H20
E. None of the above

Q57

Do a Qs with 75 year old pre op spiro and FEV1
FEV1 1.87 (76% predicted; standard residual -1.54)
FVC 2.2.L(80% pred; standard residual -0.24)
FEV1/FVC ratio 0.66

A. Bronchiodilator reversibility testing is required
B. The result are consistent with a diagnosis of COPD
C. Patients >75 year old have a degree of airway obstruction
D. The repeat testing should be arranged
E. The results are within the normal range.

Q58



What is the most likely cause of this flow-volume loop?

A. Tracheomalacia
B. Tumour of main bronchus
C. Sub-glottic stenosis
D. Polychondritis
E. ILO /vocal cord dysfunction

Q59

A 29 year old female is diagnosed with idiopathic pulmonary arterial hypertension, mMRC 3, 6MWT 330m, CTPA/VQ NAD, CXR rel. She under goes a right heart catheter.

	Baseline	Inhaled NO
Mean right atrial pressure	7 mmHg	8 mmHg
Mean pulmonary arterial pressure	52 mmHg	28 mmHg
Mean pulmonary arterial wedge pressure	8 mmHg	6 mmHg
Mean cardiac outpatient	4.2 L/min	5.8 L/min

How would you treat her idiopathic pulmonary arterial hypertension

A. Nifedipine, increasing as tolerated
B. A nitic oxide donor
C. IV prostanoid
D. A phosphodiesterase inhibitor
E. A guanylate cyclase stimulator

Q60

31 year old post partum female with SOB which was rapidly progressive over 5 month. She presented to A&E with an episode of collapse which at home, and now is mMRC 4. ECG showed RVH, HR 105, BP 98/68, Hb 139, proBNP 490, CXR clear, CTPA/VQ NAD, ECHO: TRV 4.0m/s, reduced RV function with TAPSE 10mm, small pericardial effusion, RHC below

RHC results
mPAP 35mmHg
PAWP 14
PVR 4WU

Which of the below would be the best options for managing this patient?

A. Low risk PAH: tolerate full term pregnancy and labour
B. Low risk PAH: needs urgent review in PH clinic
C. Moderate risk: needs referral to PH centre for pulmonary vasodilatory testing
D. High risk features: referral for urgent lung transplantation
E. High risk features: PH centre referral for RHC with vasodilatory testing, IV prostanoids, and PO PAH therapy as inpatient.

Q61

A 39 year old homeless female died suddenly of an unknown cause, a postmortum is conducted. She was from out of the area. Some previous investigation from another hospital are obtained. HRCT include enlargement of mediastinal lymph nodes, smooth thickening of interlobular septa and centrilobular ground-glass opacities, echo revealed a TRvelocity 5.4m/s. PMHx diagnosed with HIV 5 years ago but had disengaged with services, She was also given a life limited respiratory diagnosis 2 years ago and quickly declined in this time. She was overtly cyanosed and had blue fingers in life.

Which gene is responsible for the most likely underlying cause for her PAH?

A. EIF2AK4
B. BMPR-2
C. MUC5B
D. SERPINA1
E. ADAM33

Q62

A 32 year old Ukranian man is admitted to hospital with headache, fever, night sweats and weight loss. Normal CXR and C NAD> You suspect TB meningitis. Which of the following statements is tree?

A. You must await microbiological confirmation before you initiate anti-TB medication
B. An elevated lymphocyte count is the most common CSF finding
C. A negative PCR always excludes this diagnosis
D. CSF AFB smear is always positive in this diagnosis
E. This patient should received RIPE + dexamethasone for a full 12 month

Q63

A 49 year old man presents to ED he is admitted for a uncomplication CAP which required 48 hours of IV abx, and he was then discharged. The GP called u 4 weeks later, and is worried that patient remains SOB and asks what follow up is required for this gentleman?

A. Basic repeat bloods with CRP and WBC
B. 6 week CXR
C. Reassure + No follow up required
D. Pneumonic clinic or similar follow up at 6 weeks
E. Repeat sputum culture

Q64.

31 year old man presents to ED with an exacerbation of bronchiectasis he tells u he is known to be colonised with aspergillus and pseudomonas. He is currently on septrin and itraconazole prophylaxis and has regular IgG replacement therapy. He tells u he has suffered with ill health since childhood with recurrent skin and chest infection as well as atopic eczema. His bloods reveal a Hb 110, WBC 11 platelets 320, eosinophils 0.8, total IgE 700, CRP 30. You send off an immunoprofile screen but are awaiting the results. What underlying disease does this patient most likely suffer from?

A. HyperIgE syndrome
B. ABPA
C. CVID
D. Specific IgG Deficiency
E. Good's syndrome

Q65

What mutation is the most likely cause of XLA antibody deficiency syndrome?

A. BTK
B. JAK 3
C. RAG-1
D. CD40LG
E. CYBB

Q66

A 56 year male attends chest clinic with his son, he has an established diagnosis of bronchiectasis secondary to influenza pneumonia as a baby. He complains of increased SOB since last review and has required 4 course of antibiotics via his GP and had 2 hospital admission in the last 12 months. He has est chronic pseudomonas infection. His mMRC is 3 and his FEV1 49%, his sputum production is purulent but not increased in volume or colour from dark yellow, he gets occasional haemoptysis . Sats 93%, HR 72, BP 132/61. He is a non smoker, he has completed pulmonary rehab, he does reg chest clearance, carbocistine, azithromycin, colimycin nebs. What would the most appropriate next management step be?

A. Ref for transplantation
B. Consideration of IV cyclical antibiotics
C. Admission for acute exacerbation
D. Ref for sweat treat
E. Consider bronchoscopy

Q67

17 year old man was admitted with 2 weeks ago with a spontaneous right sided pneumothorax which was managed conservatively. O/P review – patient is well and CXR is normal. Due to fly to France on holiday next week. He wants to know if he is safe to fly?

A. He can safely fly 2 weeks after resolution of pneumothorax
B. He can safely fly 4 weeks after resolution of pneumothorax
C. He may never fly as this pneumothorax was managed conservatively
D. He can safely fly 1 week after resolution of pneumothorax
E. He can safely fly 3 months after resolution of pneumothorax, only if repeated imagine is ok.

Q68) You’re given the results of a recent pleural tap you did on a 62 year women with SOB and a effusion. The lymphocytes are 70% of the nucleated cell. Which of the following causes does this exclude?

1. Benign asbestos
2. Chronic TB
3. Cardiac failure
4. Rheumatoid
5. Sarcoidosis

Q69)Which of the below is not a characteristic sign of malignant pleural disease

1. nodular pleural thickening,
2. mediastinal pleural thickening,
3. parietal pleural thickening >1cm
4. circumferential pleural thickening.
5. pleura enhances intensely around the fluid which usually forms a lenticular opacity

Q70) 20 yr old student, 24h fever, malaise, Cough, otherwise well O/E Temp 38.5^0 C, Pulse 112, BP 126/60, RR 30, CRP 278, WBC 16, Urea 7.0, Cr 62, Na 130, K 5.4. Follow CXR is done.

What is he CURB-65 score?

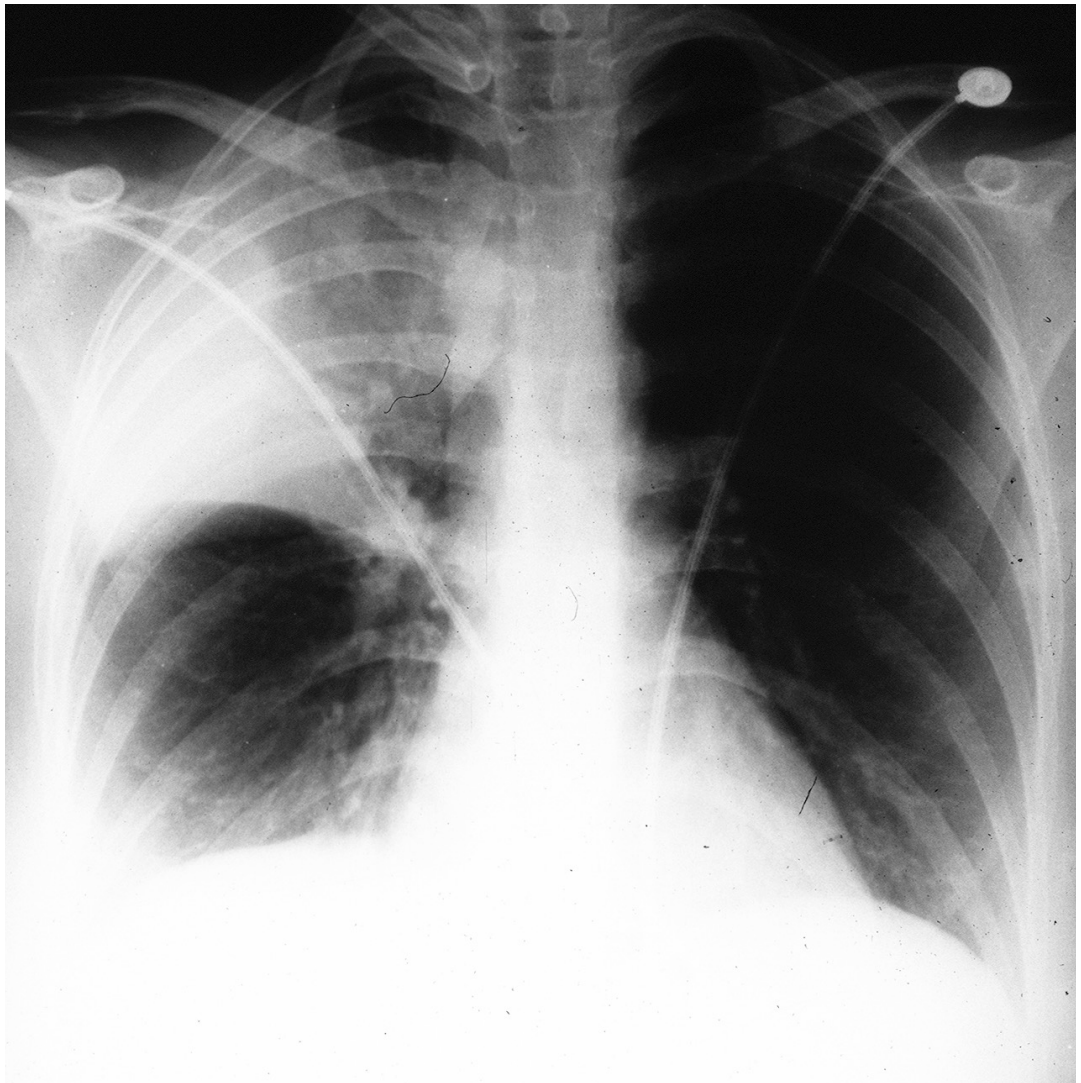
A. 2

B. 1

C. 3

D. 4

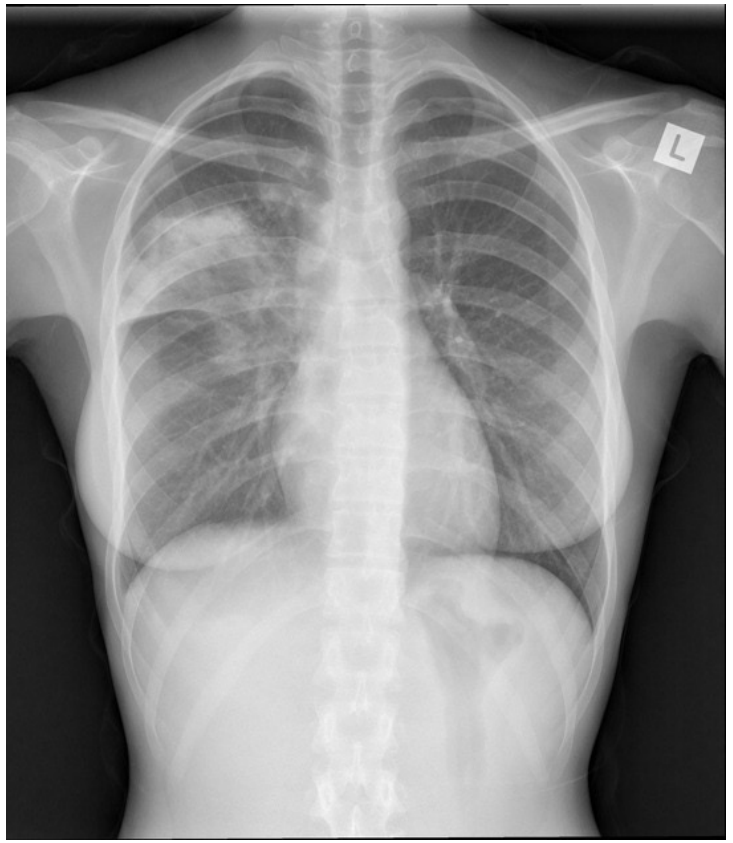
E. 0



Q71) 20 year old female is admitted with cough, purulent sputum, fever and chest pains. O/E GCS 15/15, sats 93% on air, RR 25,, temp 38.1, HR 110, BP 100/60. Recent return from SE Asia travelling during rainy season, no PMHx. O.E Right upper quadrant pain in abdomen. CXR see below. Bloods: Hb 135, WBC 15, neutron 11, eosino 0.2, platelets 560, Na 140, K 3.5, urea 8, Cr 80, ALT 70, ALP 230, Albumin 30, CRP 135.

What is the best antibiotic choice for her?

A. IV ceftazidime
B. IV amoxicillin
C. IV co-amoxiclav + clarithromycin
D. Oral doxycycline
E. Oral levofloxacin



Q72)

In May 2020 trial of steroids in severe COVID-19 pneumonitis was conducted. 1st group had standard medical treatment as per NICE guidelines at the time (n=1,005) and the 2nd group had standard medical treatment + dexamethasone + tocilizumab for 7 days (n=1,261). The primary outcome measurement was time to clinical recovery. The mean (standard error) recover time in the standard group (1) was 10.2 days and 7.2 days in the adjective steroids + tocilizumab group (2). Which statistical method is most appropriate for comparison of these two groups?

A) Chi-squared test
B) Kaplan Meier with log rank test
C) Linear regression
D) Mann-Whitney U test
E) Wilcoxon signed-rank sum test

Q73)

Mr Jones is a 58year old man who has been referred to the sleep service with daytime somnolence. He reports poor quality sleep, nocturnal wakening, and feeling "muzzy headed" when he wakes up. He has a past history of hypertension and an episode of atrial fibrillation. He has never smoked. His saturations in clinic are 92%, and his BMI is 46. On examination he has red and oedematous lower legs. His ABG done in clinic shows: pH 7.38, pCO2 6.4, pO2 8.2, HCO3- 33. He has had a respiratory sleep study done which shows an AHI of 38, mean saturations of 86%, and time less than 88% of 249mins. What would your initial management of this patient be?

A: Weight loss advice, and referral to specialist weight management service.

B: Start CPAP autoset at 8cm-14cmH20

C: Refer for mandibular advancement device.

D: Advise him to stop driving

E: Start domiciliary NIV on IPAP 24, EPAP 6.

Q74)

Your SHO asks you about the correct treatment for a patient she has seen in clinic with a GP diagnosis of COPD and she thinks sleep apnoea. The patient has an epworth score of 14 and reports daytime sleepiness. They are no longer smoking having given up 2years previous, having accrued a 30 pack year history. Their FEV1 is 62% predicted with a FEV1/FVC ratio of 80%. They have arranged overnight respiratory polygraphy and this shows an AHI of 18. Which would be the best initial management?

A. Arrange an ABG and give CPAP if not acidotic, if acidotic then admit.

B. Start CPAP 10cmH20, and repeat respiratory sleep studies on treatment.

C. Start NIV IPAP 24 EPAP 8 if ABG shows $PCO_2 \geq 7.0$

D. Start CPAP 10cmH20 if ABG shows $PCO_2 \leq 7.0$

E. Start CPAP 10cmH20 and stop inhalers as no evidence of COPD on spirometry.

Q75)

You are keen to ensure that more COPD patients are started on domiciliary-NIV. In which of the following COPD patients would it be most appropriate to consider DOM-NIV?

A. KW on LTOT 2L has CBG in oxygen clinic showing: pH 7.36, PCO2 7.4, pO2 8.1, HCO3 32.

B. QR: seen in oxygen clinic 2 weeks after an admission with an exacerbation of COPD requiring NIV, CBG on 1L LTOT shows: pH 7.41, PCO2 7.1, pO2 8.3, HCO3 34.

C. EF: Weaned off acute NIV for an acute exacerbation 5days ago. CBG done on day of discharge on air showed: pH 7.38, pCO2 7.3, pO2 7.1, HCO3 35

D. DE: seen in oyxgen clinic as sats of 90% in respiratory clinic. CBG shows: pH 7.43, pCO2 7.4, pO2 7.1, HCO3- 36.

E. LD: seen in respiratory clinic where he was coughing up green sputum and wheezy. CBG shows: pH 7.34, pCO2 8.3, pO2 6.8, HCO3- 29.

Q76)

IR has presented to the emergency department with worsening breathlessness and productive cough. He has a background of COPD. His initial gas showed: pH 7.29, pCO2 7.3, pO2 8.5, HCO3- 29. The repeat ABG done by your SHO after treatment with nebulisers, and steroids showed: pH 7.33, pCO2 7.1, pO2 8.1, HCO3- 30. What is the optimal initial management?

A. Start NIV at IPAP 12, EPAP 4. Repeat gas in 1 hour and increase pressures if ABG not improving.
B. Continue with nebulisers and steroids. Repeat ABG in 1hour and consider NIV if not improving.
C. Start NIV at IPAP 15, EPAP 3. Up-titrate pressures over 10-30minutes to an IPAP between 20-30.
D. Start NIV at IPAP 12, EPAP 4. Increase pressures to an IPAP of 16-20 by the first hour.
E. Refer to intensive care for consideration of invasive ventilation.

Q77)

You are asked to see a 48 year old patient on the renal ward as they have found that her saturations are a bit low at 89-90%, and that she desaturates at night. She has been an inpatient for 2 weeks under the renal team for IV diuresis but they have struggled to get much fluid off and her weight has remained much the same. When assessing her you note that she is morbidly obese and seems quite drowsy, her chest is clear and she has oedema to her thighs. She has a past history of cellulitis, type 2 diabetes, AF and CKD 3. She has a 12 pack year smoking history. You ask one of the renal juniors to do a gas and this shows: pH 7.36, pCO_2 6.9, pO_2 7.8, HCO_3^- 38, FiO_2 21%. What would be the most appropriate initial management plan?

A. Start nebulisers, steroids, and antibiotics for undiagnosed COPD.
B. Start NIV: target IPAP 20-30 in 10-30minutes with EPAP 6 to 8.
C. Arrange overnight pulse oximetry as an inpatient with a plan to see her in sleep clinic if it demonstrates sleep apnoea.
D. Ask the renal team to organise an ECHO, and CTPA to identify the cause for the hypoxaemia, and review with the results.
E. Give oxygen to maintain saturations between 88-92% to aid diuresis, and advise an ECHO to look for heart failure.

Q78)

KW has recently been diagnosed with bulbar motor neurone disease and you are reviewing him in ventilation clinic. He has no other medical problems. Which of the following results would be most suggestive of a potential need to consider starting non-invasive ventilation?

A: FVC 85% predicted, SNIP 60cmH20, with no symptoms

B: FVC 75% predicted, SNIP 68cmH20, with no symptoms

C: FVC 50% predicted, SNIP 65cmH20, with no symptoms

D: FVC 48% predicted, SNIP 60cmH20, with no symptoms

E: FVC 65% predicted, SNIP 60cmH20, and needing naps in the day.

Q79)

Which of the following statements is true regarding TB infection and aircraft travel.

A. Pre-flight assessment is no longer advised for those with acute and chronic respiratory infections
B. In patients whom drug-resistant TB is not suspected and whom have completed 1 weeks of effective anti-TB treated are deemed safe to fly
C. Patients with MDR TB XDR-TB or TDR-TB must not travel on any commercial flight until that are proven to be non-infection with two consecutive negative sputum culture results.
D. Patients with Total-Drug resistant TDR-TB must not travel on any commercial flight
E. In patient with TB, whom drug-resistant TB is not suspected, are deemed safe to fly as long as they were a FFP3 mask

Q80

30 year old patient who has a history of asthma with multiple courses of steroids, no fixed abode at times, IVDU, presents to ED. Cachexia, cough, haemoptysis, pleuritic pain, he is found to have a soft tissue abscess on his left arm, CXR – crackles. He is confused and agitated. Pyrexia. Sputum is sent and is reported to be AFB +ve, OE: systolic murmur heard. What is the most likely cause of this patients presentation.

A. Nocardiosis
B. Actinomycosis
C. Melioidosis
D. Leptospirosis.
E. Histoplasmosis

The Answers

The composition of the paper is as follows:

Topic	Number of questions*
Airways disease	35
Interstitial lung disease (ILD)	25
Disorders of the pleura and mediastinum, including pneumothorax	25
Pulmonary infections	35
Pulmonary vascular disease	20
Sleep-related breathing disorders and hypoventilation	5
Thoracic oncology	35
Other ^	20
Total 200	

Q1: Which of the following is a marker specific for pulmonary Langerhans cell histiocytosis LCH in BAL fluid and tissue biopsy?

1. CD1a
2. Elevated CD4:CD8 ratio
3. Reduced CD4:CD8 ratio
4. CD19
5. CD1a negative

Ans1: Which of the following is a marker specific for pulmonary Langerhans cell histiocytosis LCH in BAL fluid and tissue biopsy?

1. CD1a positive
2. Elevated CD4:CD8 ratio
3. Reduced CD4:CD8 ratio
4. CD19
5. CD1a negative

Langerhans cell histiocytosis (LCH) is an inflammatory and neoplastic disease.

Diagnostic features include a mixed inflammatory background and a proliferation of Langerhans cells with **grooved reniform nuclei expressing CD1a and CD207 (Langerin) by immunohistochemistry (IHC)**.

Notes:

**Elevated CD4:CD8 ratio = SARCOIDOSIS (if u have lymphocytes in BAL)
**Reduced CD4:CD8 ratio = HP

Q2. A 64 year old with COPD diagnosed 15 years ago, with 45 PYs, medication is spiriva, Keppra 250mg BD, citalopram 4mg. PMHx: epilepsy, diet controlled DM. He wants help to quit smoking. Which of the below statements is true?

1. Bupropion 150mg daily would be optimal treatment
2. Vareniciline would be 1st line choice
3. Providing brief advice on risks of smoking, assessing current and previous smoking history is unlikely to help
4. E-cigarette are a safe alternative to smoking
5. Pharmacotherapy and behaviour support in combination offers the best chance of continued smoking cessation

Ans2. A 64 year old with COPD diagnosed 15 years ago, with 45 PYs, medication is spiriva, Keppra 250mg BD, citalopram 40mg. PMHx: epilepsy, diet controlled DM. He wants help to quit smoking. Which of the below statements is true?

1. Bupropion 150mg daily would be optimal treatment - Contra-indications Acute alcohol withdrawal; acute benzodiazepine withdrawal; bipolar disorder; CNS tumour; eating disorders; history of seizures; severe hepatic cirrhosis
2. Vareniciline would be 1st line choice – Champix - study did not find a significant association between varenicline and increased risk of presumptive seizures, care in history of depression.
3. Providing brief advice on risks of smoking, assessing current and previous smoking history is unlikely to help
4. E-cigarette are a safe alternative to smoking
5. Pharmacotherapy and behaviour support in combination offers the best chance of continued smoking cessation

Q3. You are referring a 19 year old to the local severe asthma service they wish you to organise a PFTs tests to ensure an accurate diagnosis. Which of the following tests is a direct airway challenge?

A. Exercise
B. Hypertonic saline challenge
C. Mannitol challenge
D. Methacholine challenge
E. Salbutamol reversibility

Ans3. You are referring a 19 year old to the local severe asthma service they wish you to organise a PFTs tests to ensure an accurate diagnosis. Which of the following tests is a direct airway challenge?

A. Exercise
B. Hypertonic saline challenge
C. Mannitol challenge
D. Methacholine challenge
E. Salbutamol reversibility

Notes:

- Histamine is the other direct challenge
- Indirect felt to be more ‘useful’ in asthma
- Others are all indirect.

Q 4. You receive the FeNO results for a patient in your difficult asthma clinic. The result comes back as 20ppb with evidence of reversibility demonstrated on the spirometry result. What might explain this FeNO result for this patient.

A. Allergic sensitisation and exposure
B. Smoking
C. Rhinovirus
D. Rhinitis and nasal polyposis
E. Beetroot salad

Ans4. You receive the FeNO results for a patient in your difficult asthma clinic. The result comes back as 20ppb with evidence of reversibility demonstrated on the spirometry result. What might explain this FeNO result for this patient.

A. Allergic sensitisation and exposure
B. Smoking
C. Rhinovirus
D. Rhinitis and nasal polyposis
E. Beetroot salad (nitrate intake – dark choc)

Notes:

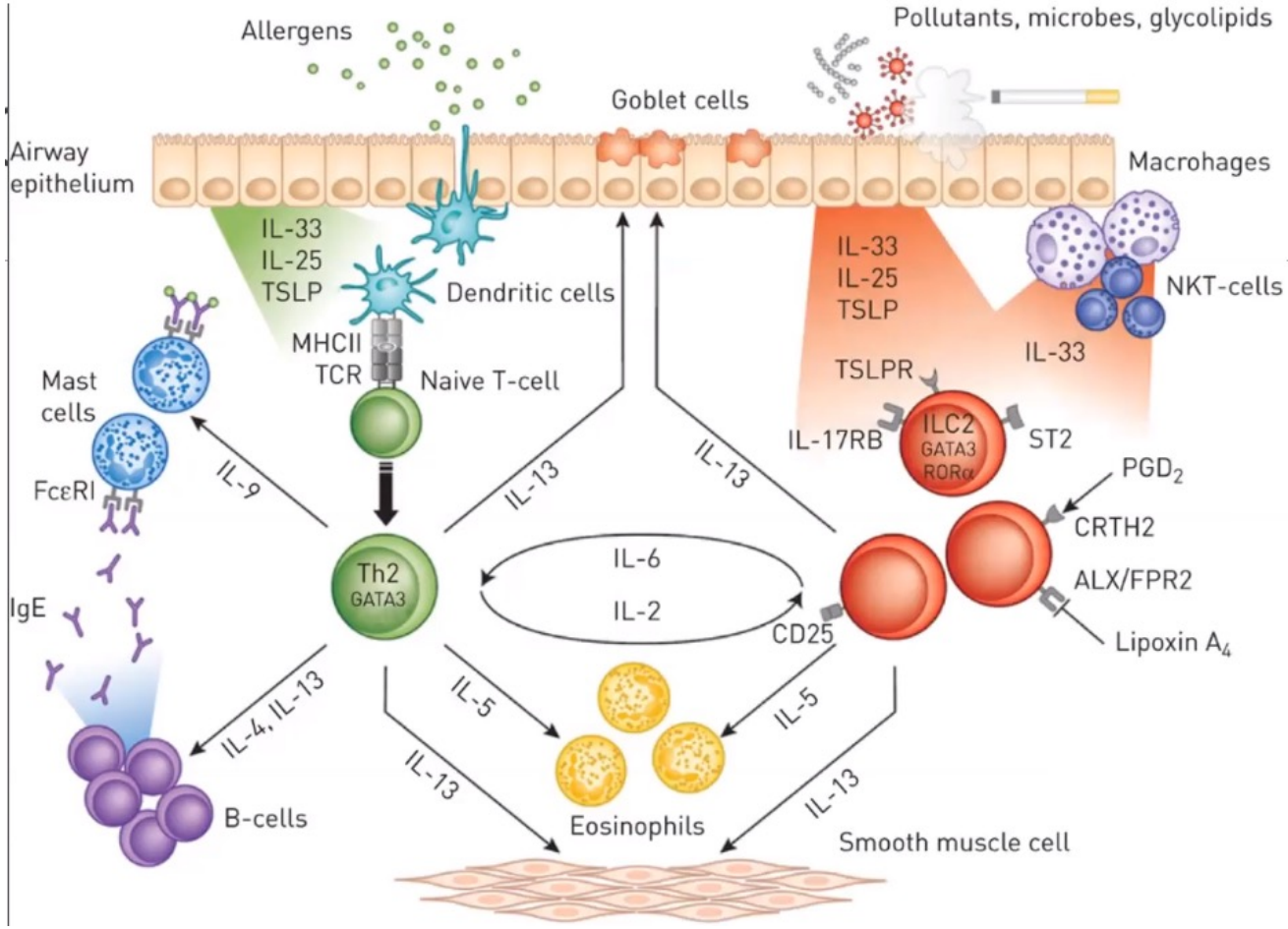
- Children/young adult have lower FeNO results
- Others increase you FeNO

Q5. Which interleukin activates neutrophils in T2 low asthma?

A. IL-4 activates neutrophils
B. IL-5 activates neutrophils
C. IL-9 activates neutrophils
D. IL-13 activates neutrophils
E. IL-17 activates neutrophils

Ans5. Which interleukin activates neutrophils in T2 low asthma?

A. IL-4 activates neutrophils
B. IL-5 activates neutrophils
C. IL-9 activates neutrophils
D. IL-13 activates neutrophils
E. IL-17 activates neutrophils



Q6) A 29 year old man is seen in the severe asthma service with recurrent exacerbation. His asthma has been poorly controlled for many years, he is on optimal inhaled therapies, with highest dose ICS/LABA and LAMA, a LTRA, oral prednisolone 7.5mg OD, ex-smoker 15 Pys, Spiro with reversibility was positive. ACT 15. WCC 5.8, eosinophil 0.2, Hb 129, Total Ig 470, RAST positive HDM, cat, tree and grass. Which biologic would be most appropriate to improve his asthma control.

A. Benralizumab
B. Increase oral steroids to 10mg OD and review in 4 weeks
C. Mepolizumab
D. Omalizumab
E. Resilizumab

Q6) A 29 year old man is seen in the severe asthma service with recurrent exacerbation. His asthma has been poorly controlled for many years, he is on optimal inhaled therapies, with highest dose ICS/LABA and LAMA, a LTRA, oral prednisolone 7.5mg OD, ex-smoker 15 Pys, Spiro with reversibility was positive. ACT 15. WCC 5.8, eosinophil 0.2, Hb 129, Total Ig 470, RAST positive HDM, cat, tree and grass. Which biologic would be most appropriate to improve his asthma control.

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B. Increase oral steroids to 10mg OD and review in 4 weeks
C. Mepolizumab
D. Omalizumab
E. Resilizumab

Eosinophils not high enough for IL5

Q7. One of your COPD patients wishes to travel abroad, in which of the following scenarios is hypoxic challenge testing not required when assessing fitness to fly?

A. 80 year old COPD patient with sats on room air 93%, with pCO_2 at rest of 6.1.
B. 64 year old COPD patient with previous normal HCT and 2 recent admissions to hospital and one requiring NIV for T2RF.
C. 74 year old COPD with who has LTOT 2L
D. 73 year old COPD with LTOT 2L and CBG showing hypercapnia.
E. 44 year old COPD patient with MRC score 3, with SpO_2 84% on 6MW

Ans7. One of your COPD patients wishes to travel abroad, in which of the following scenarios is hypoxic challenge testing not required when assessing fitness to fly?

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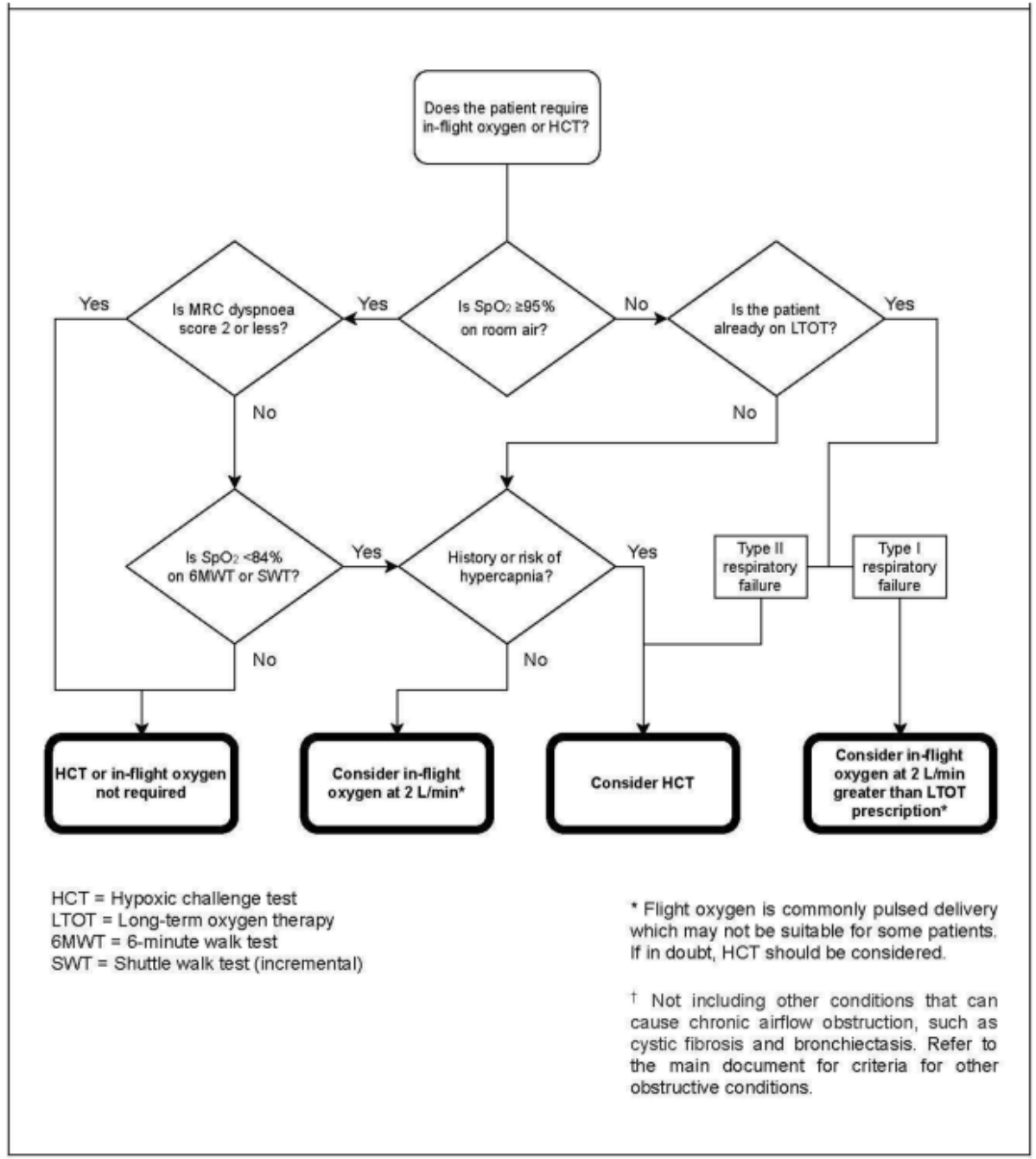

Figure 1 Preflight assessment of patients with chronic airflow obstruction.

Q8) A 62-year-old gentleman is referred to the clinic with 1 year history of worsening breathlessness, 20 PYs. His FEV1 is 30% predicted, FVC 60% predicted, TLCO 85% predicted, KCO 90% predicted. mMRC grade 4 and has had one hospital admission with IE COPD in the past year. He is on Braltus 10mcg OD and has recently completed pulmonary rehabilitation about 4 months ago.

What is his GOLD grade?

a) E

b) C

c) A

d) D

e)B

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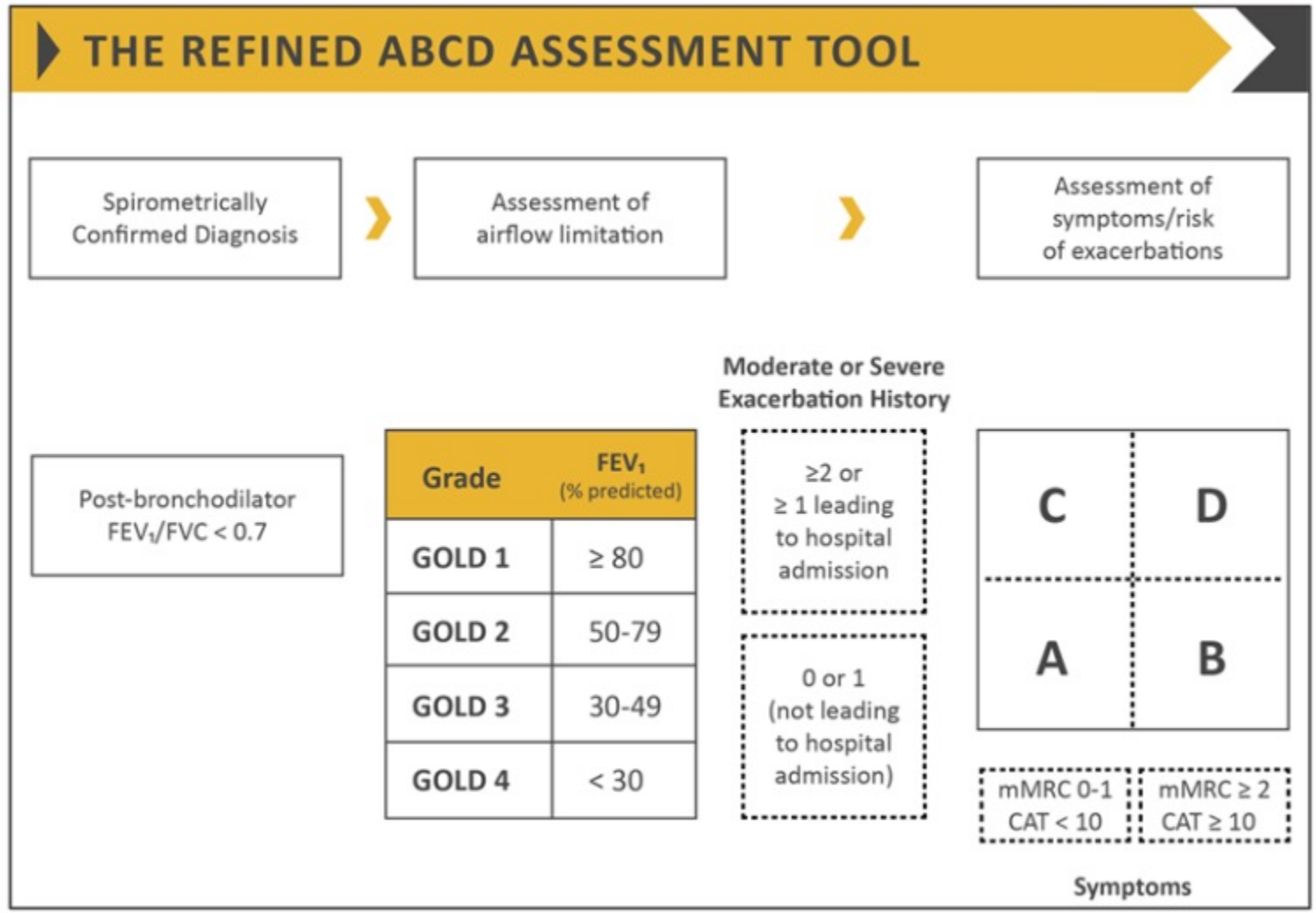
THE REFINED ABCD ASSESSMENT TOOL
Spirometrically Confirmed Diagnosis
Assessment of airflow limitation
Assessment of symptoms/risk of exacerbations
Post-bronchodilator FEV1/FVC < 0.7
Grade
FEV1 (% predicted)
GOLD 1
≥ 80
GOLD 2
50-79
GOLD 3
30-49
GOLD 4
< 30
Moderate or Severe Exacerbation History
≥2 or ≥ 1 leading to hospital admission
0 or 1 (not leading to hospital admission)
C
D
A
B
mMRC 0-1 CAT < 10
mMRC ≥ 2 CAT ≥ 10
Symptoms

Q9) A 50-year-old gentleman is referred to the Respiratory clinic with progressive breathlessness. He is an ex-smoker, with a 10-pack year history. He has no childhood respiratory illnesses of note and has no atopic tendencies that he is aware of. He was given a trial of salbutamol inhalers with no improvement in his symptoms. CXR is normal and CTPA has ruled out pulmonary embolism/ significant parenchymal disease. Recent blood tests are as follows: Total IgE mildly raised. Aspergillus IgE normal. Eosinophil count 0.4. RAST testing to cat/ dog/ tree pollen normal. RAST to HDM raised. His BMI is 30kg/m2.

Lung function tests show: FEV1 50% predicted, FVC 90% predicted, TLC 70% predicted, TLCO 80% predicted, KCO 90% predicted. Bronchodilator reversibility: Improvement in FEV1 by 150 mls, 10% change. FENO 24

What is the most likely cause for his breathlessness?

a) COPD
b) Asthma
c) Hypersensitivity pneumonitis
d) Allergy induced breathlessness
e) Raised BMI

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Q10

A patient with COPD whom you see in clinic is suffering from recurrent exacerbations and you counsel him on starting azithromycin treatment. Which of the following offers optimal practice when commencing this treatment?

a) ECG to assess QTC interval at baseline, and 1 month post starting treatment
b) Liver function tests at baseline, 1 month post starting treatment and 6 months thereafter
c) Counselling regarding potential GI side effects
d) Sputum for AFB at baseline
e) ECG and liver function tests at baseline and then 6 months into treatment

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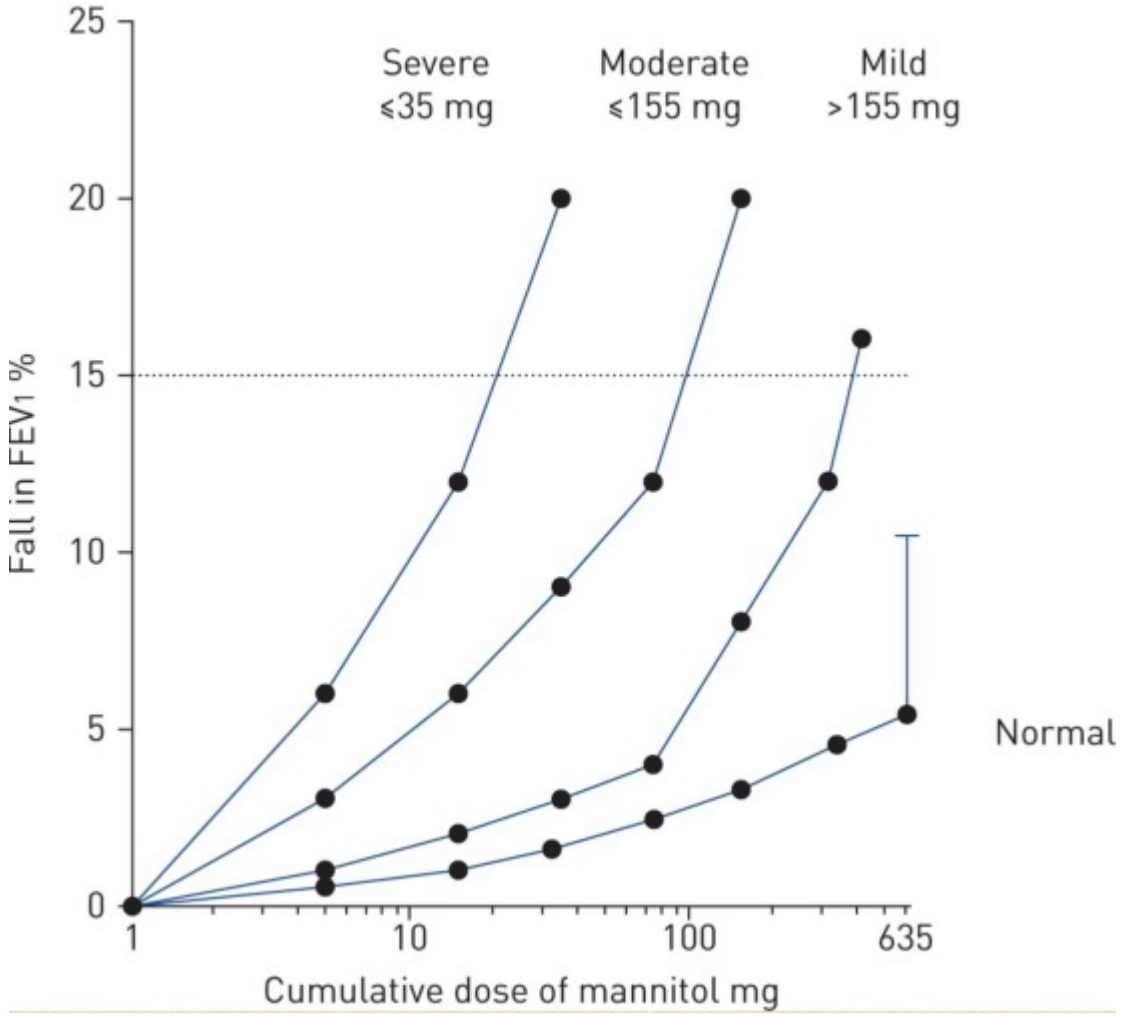
Q11) A patient undergoes a mannitol challenge test and they demonstrate an FEV1 % change of 15% at 30mg of mannitol and which point the test is stopped.

How would you define their airway hyperresponsiveness?

A. Severe
B. Moderate
C. Mild
D. Very severe
E. Normal

Classification of the severity of airway hyperresonsiveness according to the response to dry powdered mannitol challenge



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Teal S.Hallstrand et al. Eur Respir J 2018; 52: 1801033

Q12)Which of the following is true of FeNO

A. Rhinitis and nasal polyposis lower FeNO results
B. FeNO is activated via IL-4/IL-13
C. Anti-IL5s will always show reduction in a patient FeNO result
D. FeNO is a direct measure of Th-2 inflammation and eosinophilia
E. The NICE cut off for high levels of FeNO is 50

Ans 12)Which of the following is true of FeNO

A. Rhinitis and nasal polyposis lower FeNO results (false - they raise your FeNO)
B. FeNO is activated via IL-4/IL-13 (true)
C. Anti-IL5s will always show reduction in a patient FeNO result (false – Anti-IL5s do not drop your FeNO)
D. FeNO is a direct measure of Th-2 inflammation and eosinophilia (false - no it is a indirect measure)
E. The NICE cut off for high levels of FeNO is 50 (false - NICE uses a cut off as 40 as high)

Q13)Which of the following statements is correct

A. A patient 48 year old COPD patient with P02 of ≤7.3 on exertion should start on LTOT 15 hours a day
B. A patient 78 year old COPD patient with polycythaemia and P02 7.4 should start on LTOT 15 hours a day
C. CBG for LTOT assessment can be taken 4 weeks after an exacerbation
D. A patient age 81 with COPD who desaturates on exercise should be considered for ambulatory oxygen
E. In bleomcin or paraquat poisoning saturations of 90-95% are recommended targets.

Ans13)Which of the following statements is correct

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B. A patient 78 year old COPD patient with polycythaemia and P02 7.4 should start on LTOT 15 hours a day (yes)
C. CBG for LTOT assessment can be taken 4 weeks after an exacerbation (no 8 weeks)
D. A patient age 81 with COPD who desaturates on exercise should be considered for ambulatory oxygen (no ambulatory O2 in ILD only)
E. In bleomcin or paraquat poisoning saturations of 90-95% are recommended targets. (no – aim sats 85-88%)

Q14

MR Jones 70year old is being consider for lung volume reduction surgery, he is on maximal medical therapy triple therapy, 2L LTOT, GOLD grade 4, FEV1 15%, he has required 2 course of antibiotics in last 12 months, 6MWD 200m, HRCT shows fissural integrity, CAT score 12, his RV:TLC is 0.60. He has stopped smoking, he had attended pul rehab. PMHx: epilepsy, AF, HTH, hypercholesterolaemia. Current medication: apixaban, Keppra, ramipil and simvastatin. Which of the following statements is correct.

A. He should be refer for LVRS urgently, based on this information he would be an optimal candidate
B. Referral for lung transplantation would be absolutely contraindicated in this patient.
C. His RV:TLC ratio is not optimal for consideration of LVRS
D. He has 2 factors which would not make him an optimal candidate for LVRS
E. He has 1 factor which would not make him a optimal candidate for LVRS

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Consideration for LVR therapies

- GOLD Grade 3-4 (fev1 20-50%)
- <2 exacerbations per year
- mMRC >2 despite optimal therapies
- CAT >10
- Hyperinflation RV >176 or RV/TLC >0.58
- Gas transfer >20%^
- 6MWD 100-450m
- RCSP >50 = then need right heart catheter first
- HRCT compatibility

Q15) Which of the following statements is false

A. Roflumilast is a PDE4 inhibitor
B. Theophylline is not a phosphodiesterase inhibitor
C. Aminophylline enhances the influx of calcium ions
D. Montelukast has been associated with the development of churg-straus syndrome
E. Prednisolone inhibit L-selectin synthesis yes (this leads to demargination of leukocytes into the circulation leading to leukocytosis).

Ans15) Which of the following statements is false

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Q16 which of the following inhaled corticosteroids should be delivered once daily.

A. Fluticasone propionate
B. Fluticasone furoate
C. Budesonide
D. Beclomethasone dipropionate
E. Aclindinium bromide

Ans16) which of the following inhaled corticosteroids should be delivered once daily.

A. Fluticasone propionate (BD) e.g flixotide
B. Fluticasone furoate (OD trelegy)
C. Budesonide (BD trixeo)
D. Beclomethasone dipropionate (BD trimbow)
E. Aclindinium bromide (OD but LAMA not ICS eg eklira)

Other OD ICS is Ciclesonide (OD) – alvesco 160 inhaler

Q17

Regarding urgent referral for lung transplantation in patients in IPF which of the follow is not a considered for referral.

A. Worsening hypoxia despite 10L O2
B. pH <7.30 despite optimal NIV
C. Refractory right heart failure
D. Massive haemoptysis despite embolization
E. 10% decline of FVC in 6 months.

Ans 17

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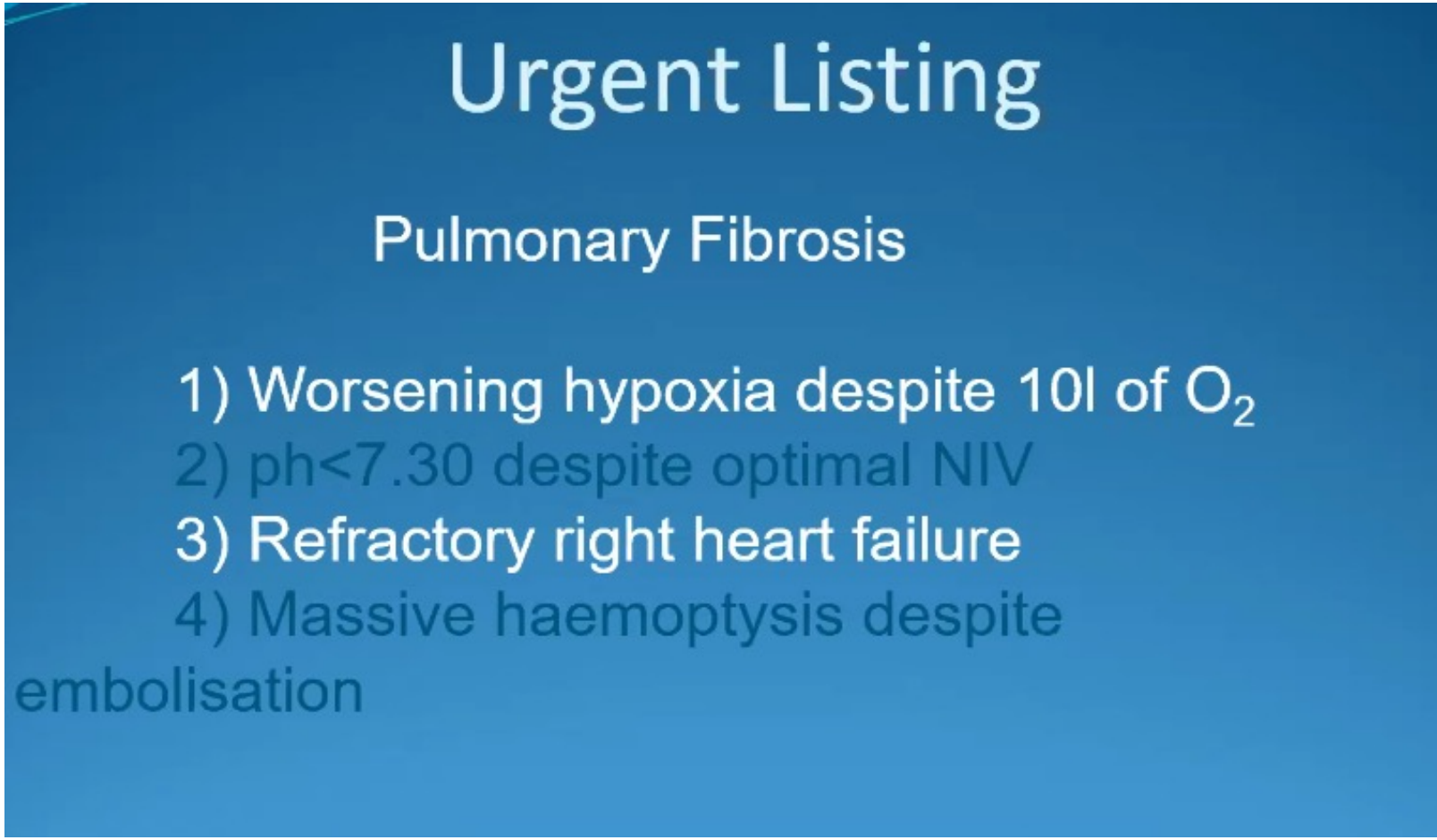
C. Refractory right heart failure
D. Massive haemoptysis despite embolization
E. 10% decline of FVC in 6 months.

Listing versus urgent listing

For listing

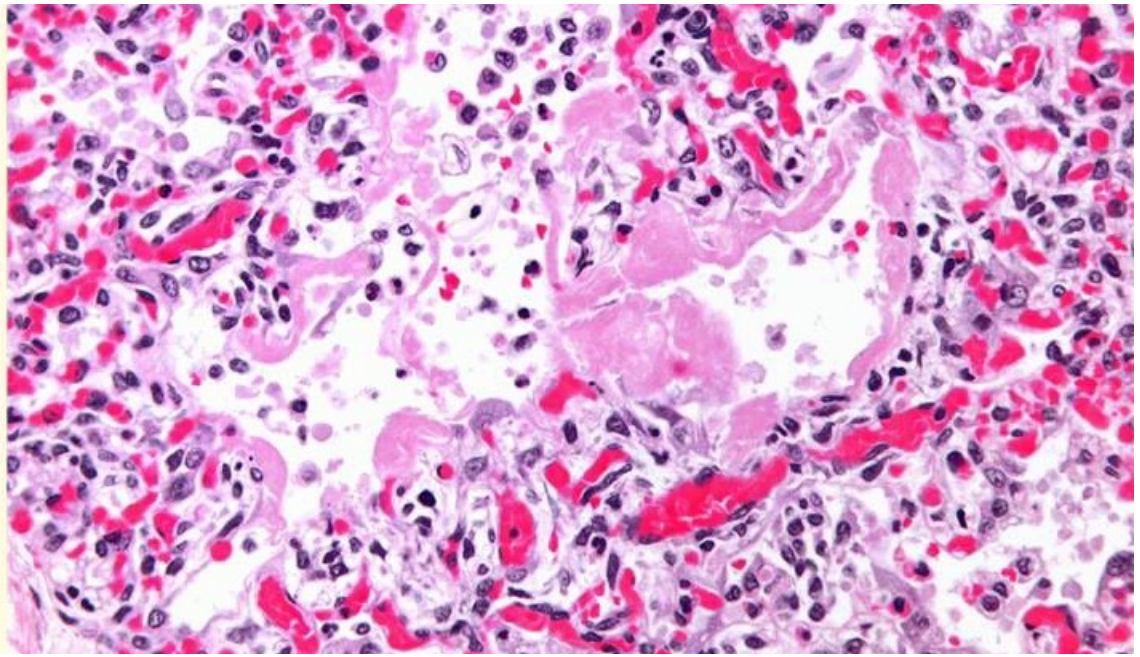
- decline in FVC =10% during six months follow up,
- a decline in DLCo =15% during six months follow up,
- <40% DLCO
- six-minute walk test distance <250 metres or desat <88% on 6min walk
- evidence of pulmonary hypertensio
- Short rapid decline in symptoms pre-diagnosis



Q18.

A 36 year old post partum female is admitted to hospital acute unwell, with fever, RR36, T1RF, hypotension and acute respiratory distress. She had a prodromal illness for 72 hour prior to admission. She is intubated and ventilated. OE: widespread crackles, CXR bilateral shadowing. She is treated with corticosteroids and antibiotics but despite this she deteriorates and died. A post mortem is conducted and the following histology slide procedure. What is not a key histological finding is characteristic of this underlying lung pathology.

A. Hyaline membranes
B. Interstitial inflammation
C. Alveolar septal thickening.
D. Foamy macrophages
E. Interstitial oedema



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A. Hyaline membranes
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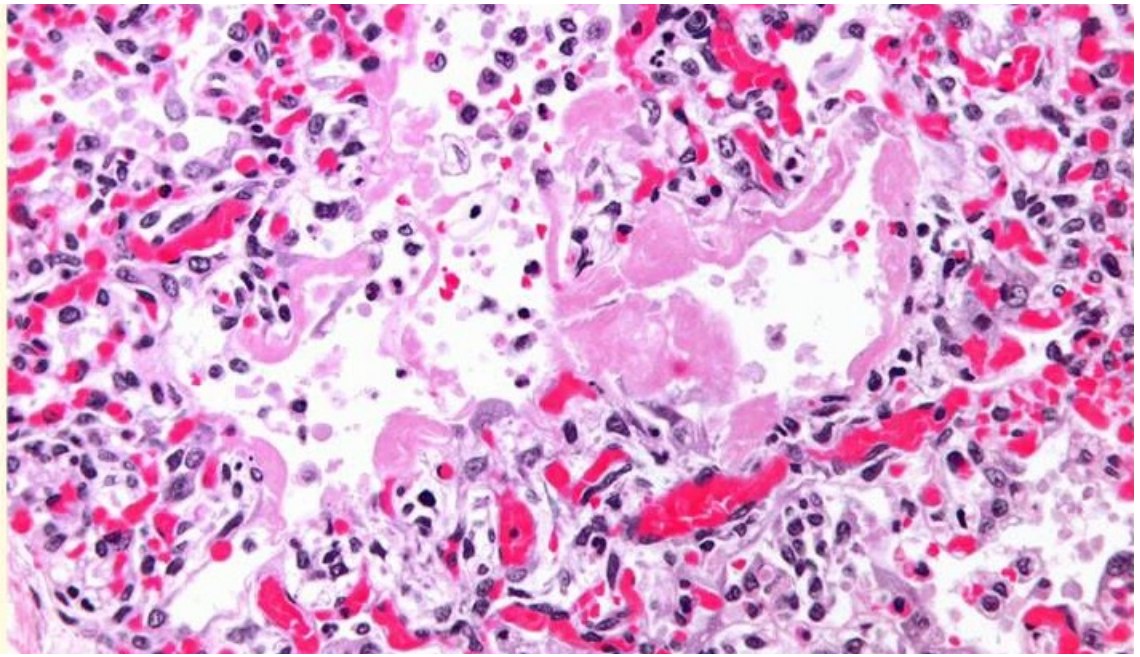
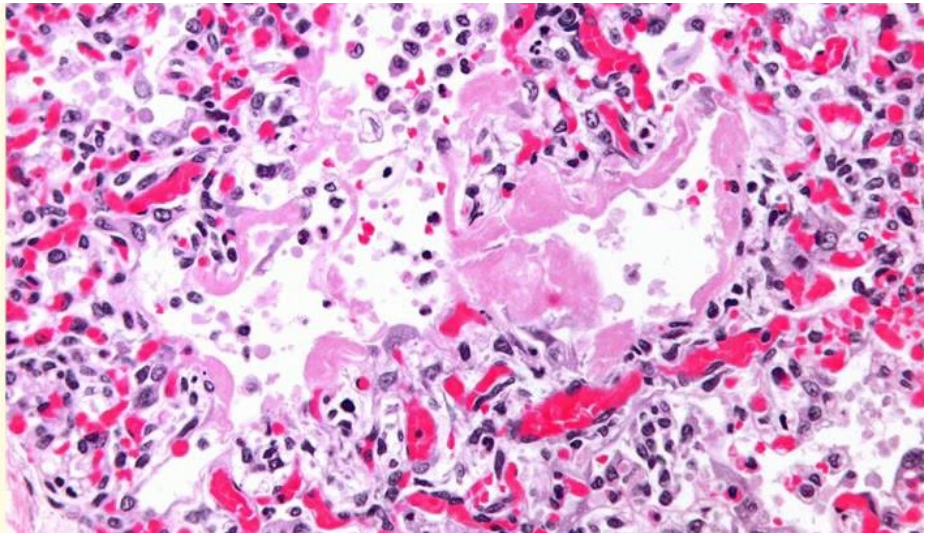
C. Alveolar septal thickening.
D. Foamy macrophages (drug induced)
E. Interstitial oedema



acute interstitial pneumonia

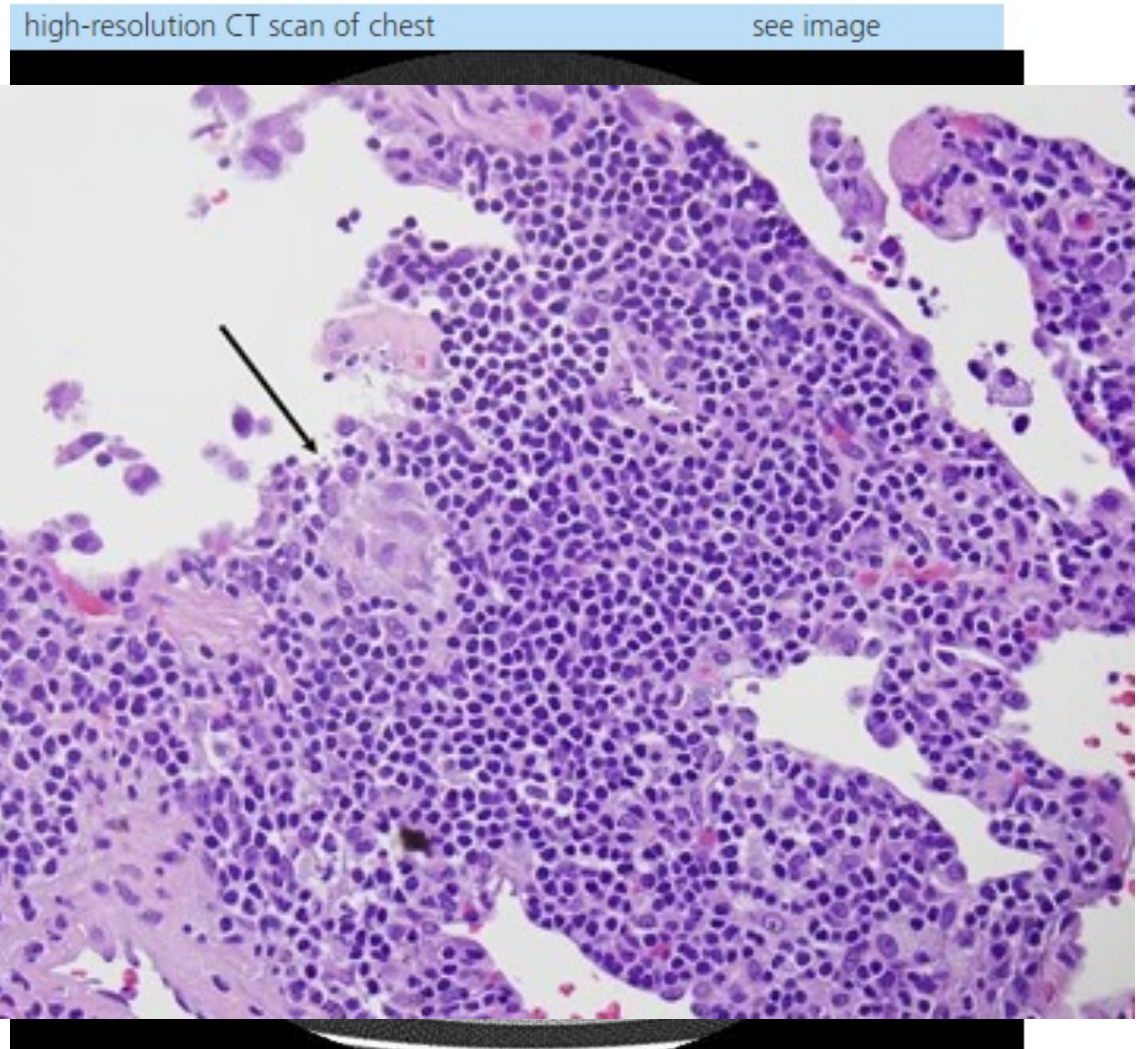


- cause for AIP is not known.
- Idiopathic form of ADRS
- Viral-type illness followed by rapid onset OSB, widespread crackles. CXR bilarteral shadowing,
- Treatment is primarily supportive. Management in an intensive care unit is required and the need for mechanical ventilation is common. Therapy with corticosteroids is generally attempted, though their usefulness has not been established. The only treatment that has met with success to date is a lung transplant
- 60%of people with acute interstitial pneumonitis will die in the first six months of illness

Histology

- Shows diffuse alveolar damage, a key feature of which is hyaline membranes in the alveoli
- oedema, interstitial inflammation, alveolar septal thickening.
- Can progress to cyst and honeycombing

Q19) A 61 year old female, presenting with 6 months of SOBOE., OE bilateral inspiratory squeaks were heard, HRCT and biopsy as shown.



What best describes the pathogenesis of the changes in the lungs?

A. IgG-containing immune complexes are formed.
B. Infiltrating eosinophils damage tissue by releasing enzymes and oxidants
C. Neutrophil oxidative burst causes tissue damage
D. Inhaled antigen leads to IgE mediated inflammation
E. Circulating autoantibiotics cause cell cytotoxicity,

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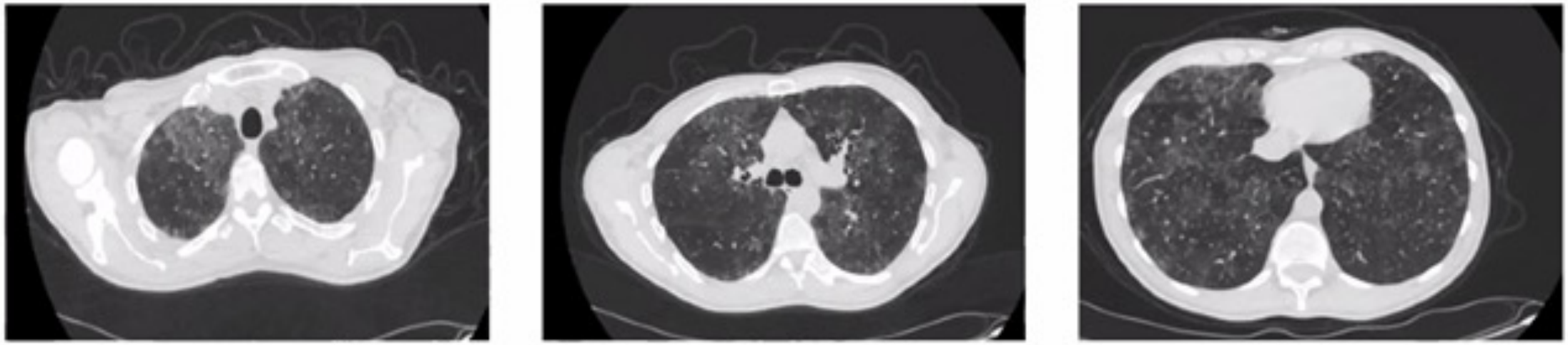
The pathogenesis of hypersensitivity pneumonitis is classically type 3 hypersensitivity mediated by IgG immune complexes.

Q20) A 47 year old landscape gardening is seen in you clinic with SOB and cough. On examination there are squarks heard. The patient has a smoking history of 20PYs and is still smoking, no PMHx. Not on any medications. He has no animals and lives in a new build house.



A. Lymphocytes 10%
B. Eosinophils 8%
C. Lymphocytes 40%
D. Neutrophils 5%
E. Eosinophils 25%

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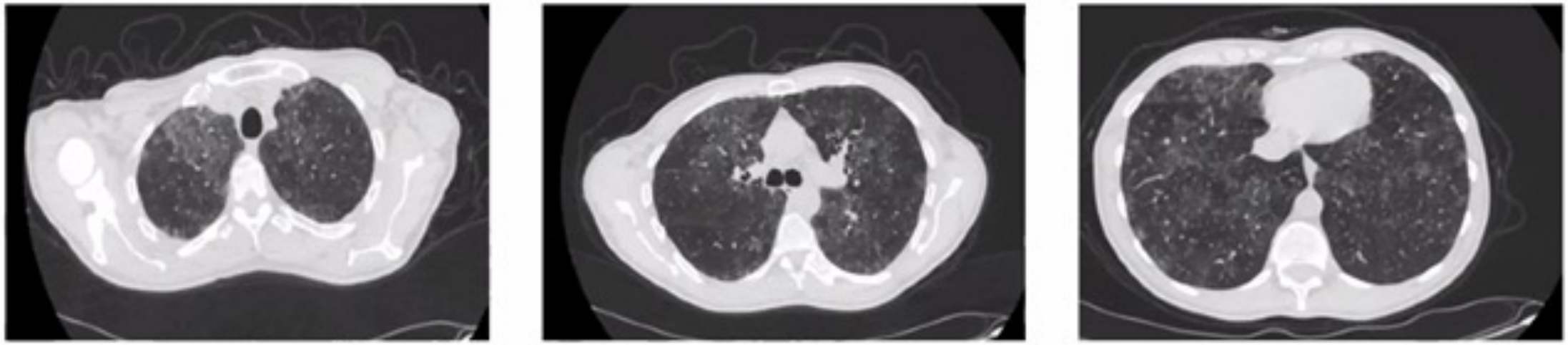

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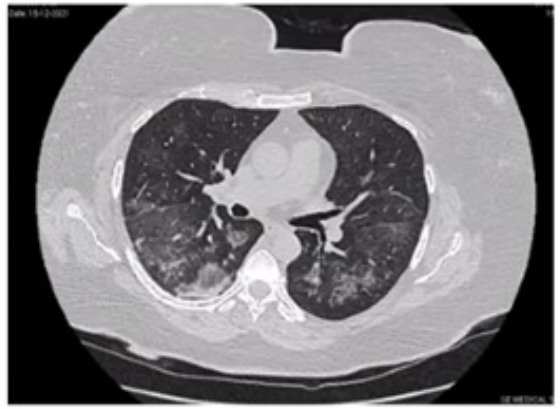
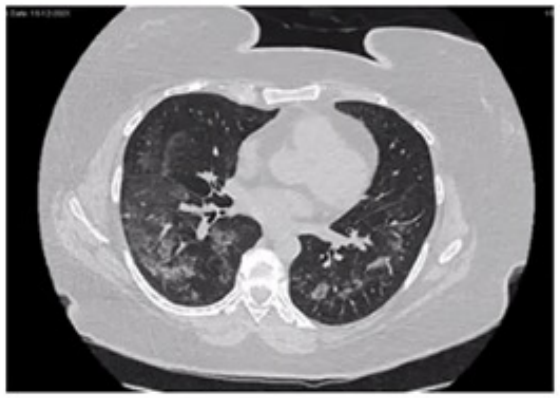
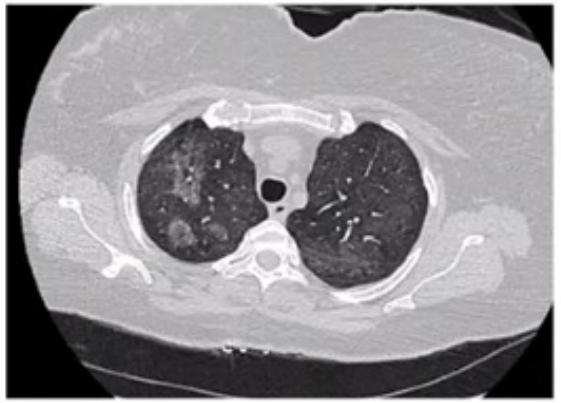
Q21) A 61 year old female presents with non-productive cough, SOB, fever, chills, night sweats, fatigue and WL. She has a background of RA, well controlled on methotrexate. She has a couple of admissions for T1RF over a 2 year period in which she responded to treatment well but on this admission she was initially responsive but then relapsed quickly after treatment was stopped. Multiple courses of antibiotics given and no response seen. The following HRCT was done as below. Bloods: Hb 132, WBC 9.8, eosinophils 0.3, CRP 45. O/E bilateral crackles heard. Biopsy and BAL were done. Histologically the biopsy demonstrated buds of granulation tissue (Masson bodies) in alveoli and alveolar ducts, the infiltration of alveolar walls with chronic inflammatory cells and the preservation of alveolar architecture. BAL demonstrated a striking increase of lymphocytes BAL coupled with a CD4/CD8 ratio <0.9. What is the most likely cause of this patients condition?

A. Chronic eosinophilic pneumonia
B. Acute eosinophilic pneumonia
C. Hypersensitivity pneumonitis
D. Cryptogenic organising pneumonia
E. Klebseilla pneumonia.







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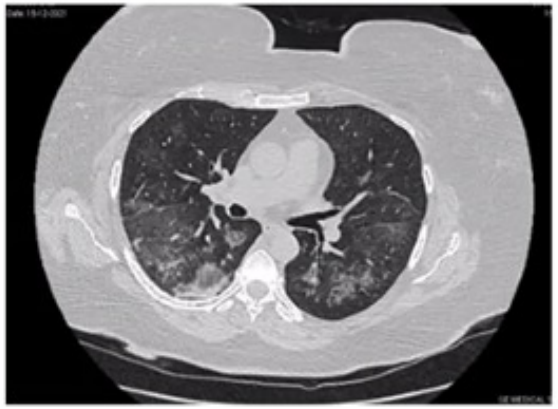
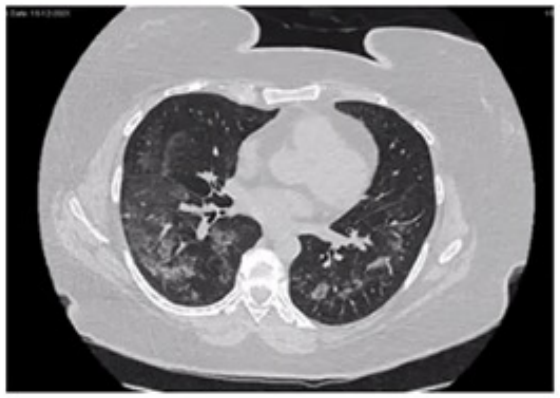




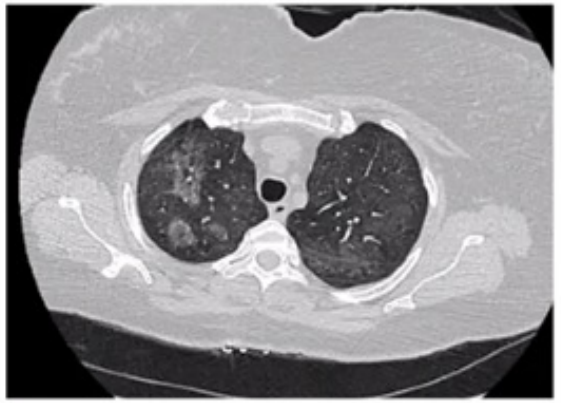


TABLE 1 Bronchoalveolar lavage (BAL) findings that are useful in interstitial lung disease diagnosis

BAL finding	Consistent interpretation/suggested diagnosis
Eosinophils ⩾25%	Eosinophilic pneumonia
Lymphocytes ⩾25%	Sarcoidosis, HP, cellular NSIP, drug reaction, CBD, LIP, lymphoproliferative disorder
Neutrophils ⩾50%	AIP, DAD, AEIPF, pulmonary infection
Bloody fluid	Pulmonary haemorrhage, DAH
High haemosiderin score	DAH, DAD
CD1a+ cells >4%	PLCH
Milky BAL fluid with PAS-positive amorphous debris	PAP
Monotypic lymphocytes	Pulmonary lymphomatous malignancy
Malignant cells	Pulmonary malignancy
Squamous epithelial cells >5%	Unsuitable sample due to upper airway secretion contamination
Bronchial epithelial cells >5%	BAL sample may be unsuitable for cell analysis

PAS: periodic acid–Schiff staining; HP: hypersensitivity pneumonitis; NSIP: nonspecific interstitial pneumonia; CBD: chronic beryllium disease; LIP: lymphoid interstitial pneumonia; AIP: acute interstitial pneumonia; DAD: diffuse alveolar damage; AEIPF: acute exacerbation of interstitial pulmonary fibrosis; DAH: diffuse alveolar haemorrhage; PLCH: pulmonary Langerhans cell histiocytosis; PAP: pulmonary alveolar proteinosis.

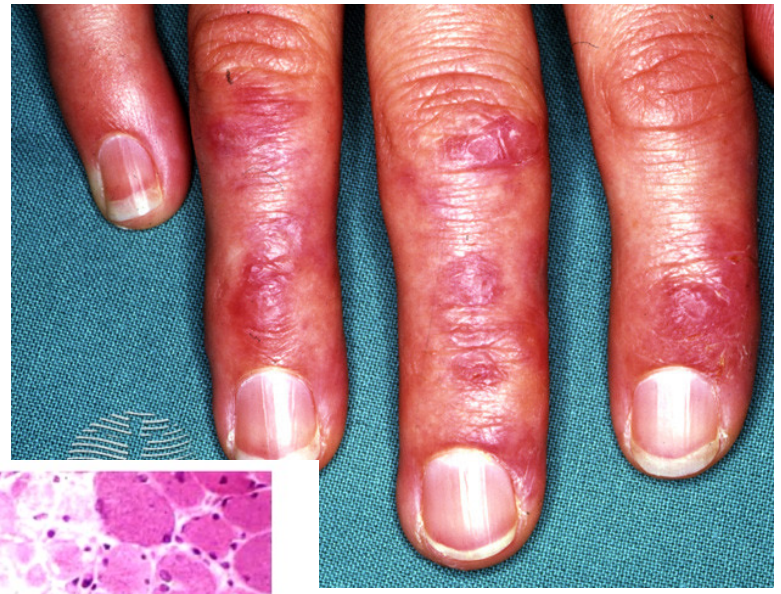
Distinctive features of idiopathic chronic eosinophilic pneumonia (ICEP) and idiopathic acute eosinophilic pneumonia (IAEP)

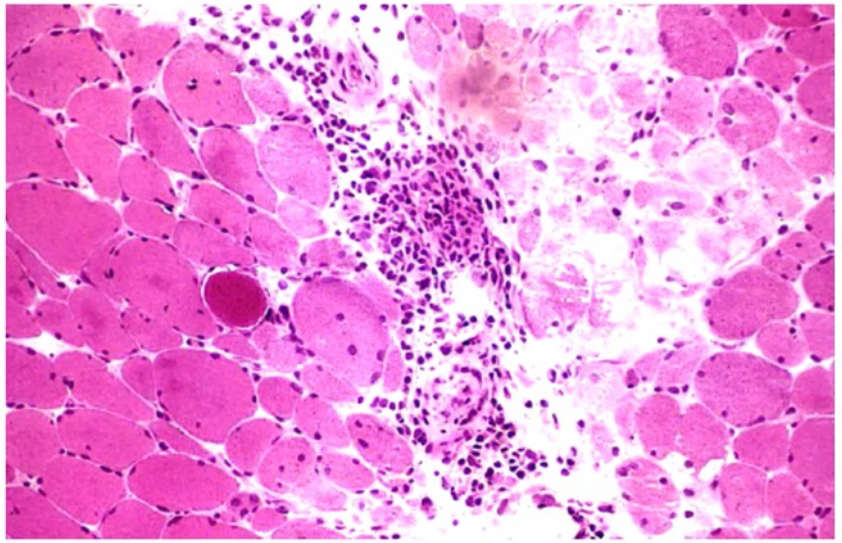
Characteristic	ICEP	IAEP
Onset	>2–4 wk	<1 mo
History of asthma	Yes	No
Smoking history	10% of smokers	2/3 smokers, often recent initiation
Respiratory failure	Rare	Usual
Initial blood eosinophilia	Yes	Often No (typically delayed)
Bronchoalveolar lavage eosinophilia	>25%	>25%
Chest imaging	Homogeneous peripheral airspace consolidation	Bilateral patchy areas of ground-glass attenuation, airspace consolidation, interlobular septal thickening, bilateral pleural effusion
Relapse	Yes	No

Cottin V et al. Clin Chest Med 2016

Q22) 54 year old female presents with T2RF requiring NIV, she gives a history of struggling at home for some time with breathlessness, and also being now unable to managed the stairs and needing help to get into the bath and out of a chair. Bloods: CK 315, Hb 94, O/E you find the following changes to her hands, CT: GGO/volume loss/traction bronchiectasis/peribronchovascular predom with subpleural sparing. Autoantibodies are positive for Anti-TIF1-y antibody and negative Anti-Jo-1.
What is the most likely diagnosis to explain her presentation?

A) Myositis
B) Inclusion-body myositis
C) Dermatomyositis
D) Anti-synthetase syndrome
E) Non-specific interstitial pneumonitis





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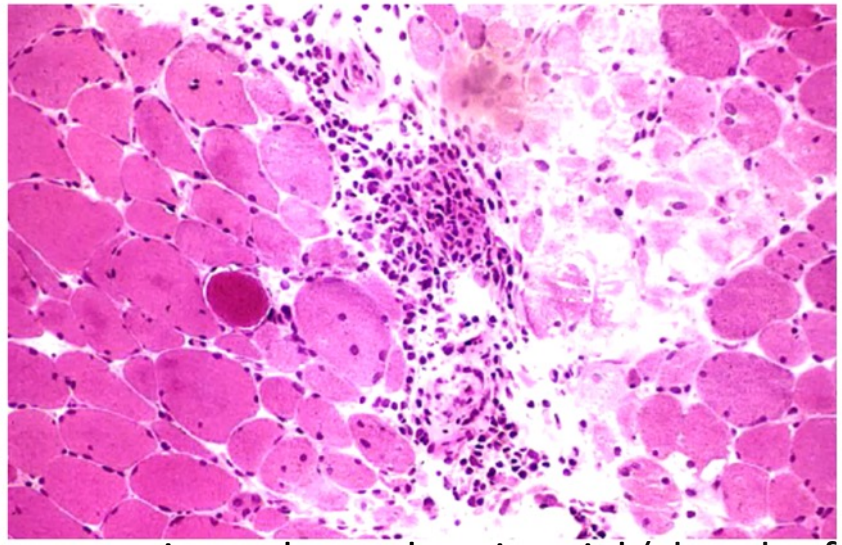
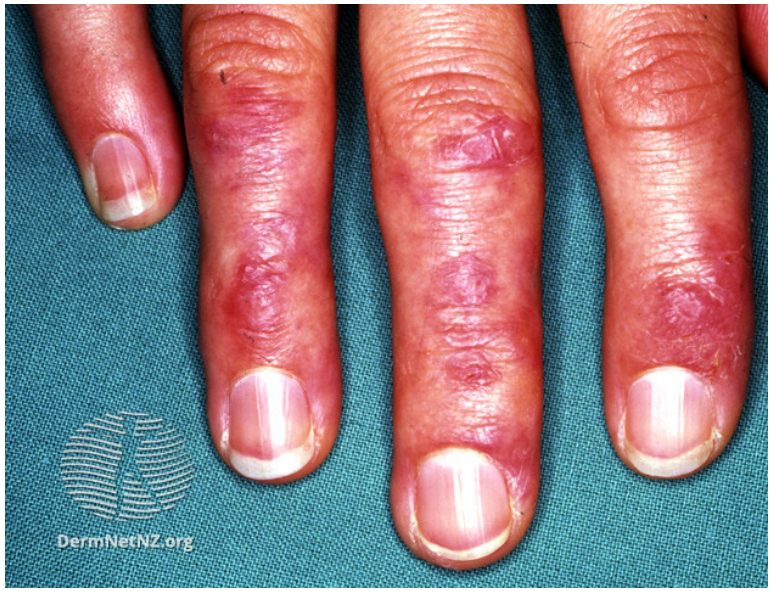


Biopsy demonstrates: perivascular and perimysial (sheath of connective tissue surrounding a bundle of muscle fibres). inflammation perifasicular necrosis.

A) Myositis
B) Inclusion-body myositis
C) Dermatomyositis
D) Anti-synthetase syndrome
E) Non-specific interstitial pneumonitis



Gottron papules

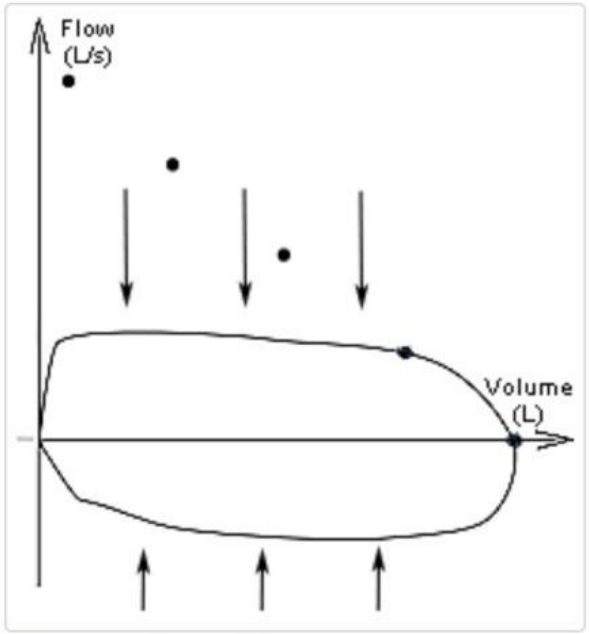
Diagnostic criteria for IM

	Polymyositis			
Criterion	**Definite**	**Probable**	**Dermatomyositis**	**Inclusion Body Myositis**
Myopathic muscle weakness	Yes	Yes	Yes	Yes; slow onset, early involvement of distal muscles, frequent falls
EMG findings	Myopathic	Myopathic	Myopathic	Myopathic with mixed potentials
Muscle enzymes	Elevated (up to fiftyfold)	Elevated (up to fiftyfold)	Elevated (up to fiftyfold) or normal	Elevated (up to tenfold) or normal
Muscle biopsy findings	"Primary" inflammation with the CD8/MHC-I complex and **no vacuoles**	Ubiquitous MHC-I expression but **minimal inflammation** and **no vacuoles**	**Perifascicular, perimysial,** or **perivascular** infiltrates, **perifascicular atrophy**	Primary inflammation with CD8/MHC-I complex; **vacuolated fibres** with **-amyloid deposits**; **cytochrome oxygenase–negative** fibers; signs of chronic myopathy
Rash or calcinosis	Absent	Absent	Present	Absent

Ans23

Question ID #4637

A 35-year-old man is referred to the chest clinic with a 3 month history of exertional dyspnoea. He remarks that his breathing is also very noisy when he is active. Upon review of his pulmonary function tests, you note flattening of the flow volume loop during both inspiration and expiration:



Which of the following may cause this pattern?

A. Tracheomalacia
B. Tumour of main bronchus
C. Sub-glottic stenosis
D. Polychondritis
E. ILO /vocal cord dysfunction

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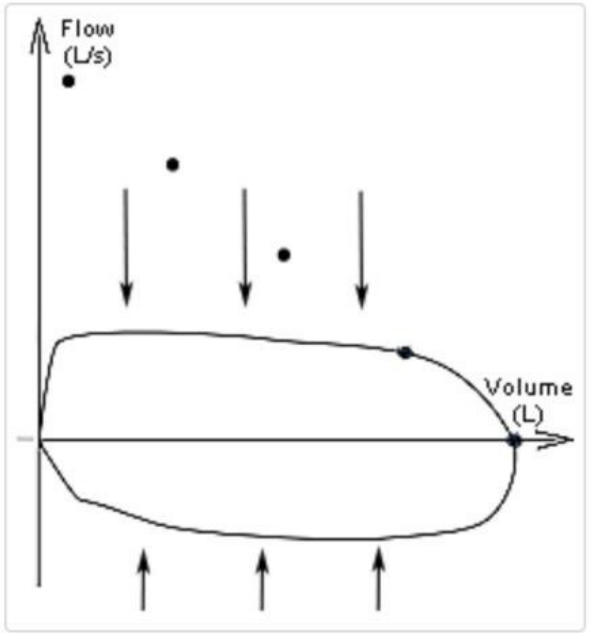

Which of the following may cause this pattern?

A. Tracheomalacia (variable intrathoracic obstruction)
B. Tumour of main bronchus (variable intrathoracic obstruction)
C. Sub-glottic stenosis (fixed airway obstruction)
D. Polychondritis (intrathoracic obstruction)
E. ILO /vocal cord dysfunction (Variable extra thoracic obstruction)

Q24) 50 year old female known asthma became more SOB. She was diagnosed with ABPA and was started on prednisolone. She did not continue to improve so was started on itraconzaole for 10 days. She began to show signs of improvement. After 11 days she deteriorated again acutely and was taken to hospital with abdo pain low blood pressure and reduced GCS. What is the immediate step in management.

A. Urgent surgical review
B. IV fluids and NBM until CT abdomen mane
C. Back to back nebulisers with Iv Magnesium
D. IV 200mg Hydrocortisone
E. IV Abx

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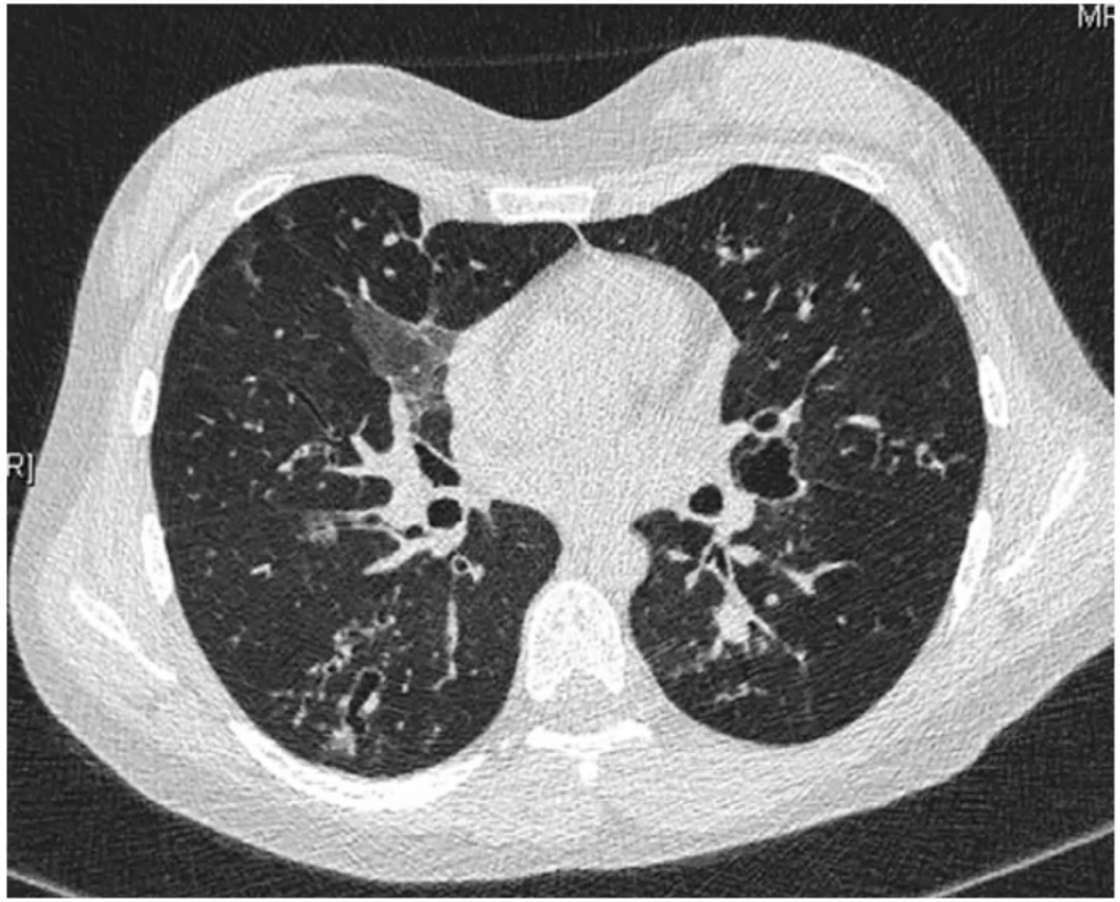
adrenal crisis

Q25) 25 yr old known asthma has worsening asthma symptoms. You start him on fostair 100/6 Specific IgE to AF is positive with Total IgE 900. You see him clinic 2 weeks later and he has worsening symptoms so you increase his fostair to 200/6 2puffs BD and his TIgE is 1000. His eosinophils have also raised and Af IgG is positive. He has HRCT see below. Is normal. What is his diagnosis?

A. Severe asthma
B. SAFS severe asthma with fungal sensitivities.
C. ABPA - Bronchiectasis
D. ABPA – Serological
E. Chronic eosinophilic pneumonia.



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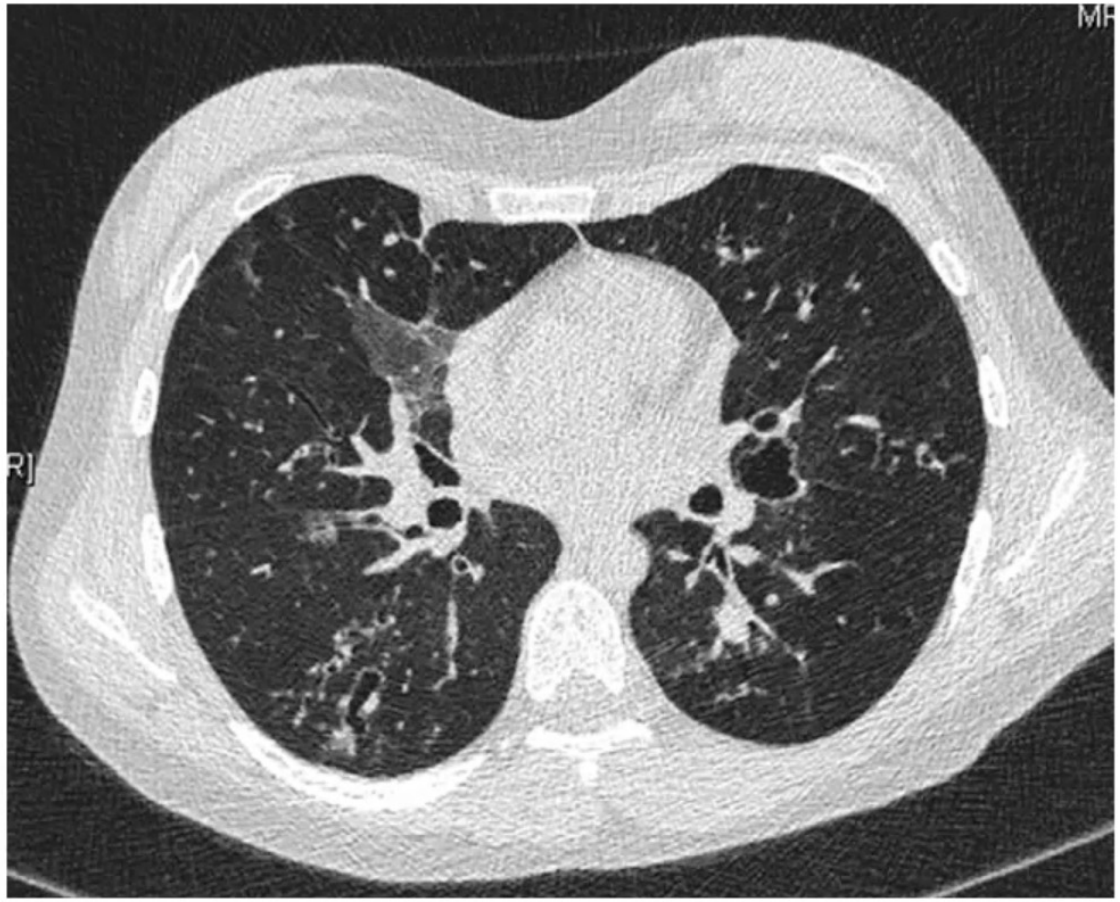

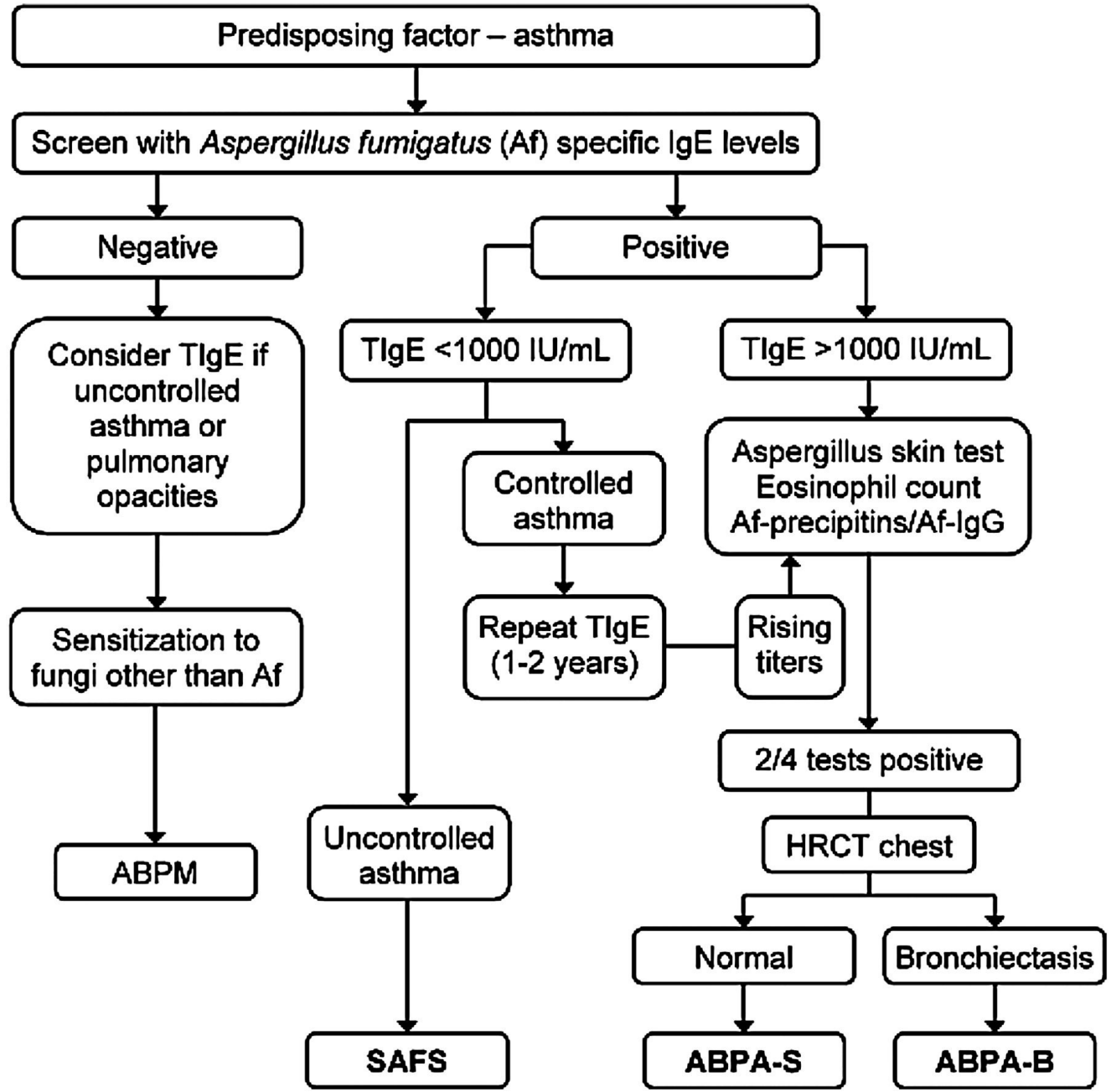
Predisposing factor – asthma
Screen with *Aspergillus fumigatus* (Af) specific IgE levels
Negative
Positive
Consider TIgE if uncontrolled asthma or pulmonary opacities
Sensitization to fungi other than Af
ABPM
TIgE <1000 IU/mL
Controlled asthma
Repeat TIgE (1-2 years)
Rising titers
Uncontrolled asthma
SAFS
TIgE >1000 IU/mL
Aspergillus skin test
Eosinophil count
Af-precipitins/Af-IgG
2/4 tests positive
HRCT chest
Normal
Bronchiectasis
ABPA-S
ABPA-B

Q26) Which of the following is not an indication for commencing cyclophosphamide in Eosinophilic granulomatosis with polyangiitis

A. Glomerulonephritis
B. Cardiac involvement
C. CNS involvement
D. Extensive treatment with prednisolone which has controlled the disease
E. Should be use 1st line when diagnosis is confirmed prior to prednisolone

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Q 27) What is the mode of action of Nintedanib?

A. TGF B inhibitor
B. Tyrosine kinase inhibitor
C. Anaplastic lymphoma kinase inhibitor
D. IL 3 inhibitor
E. MOA is unknown

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Q28)How soon after starting treatment for smear positive fully sensitive TB can you fly?

A. Can fly straight away as long as they wear a mask

B. After 3 smear negative samples taken on separate days

C. After 2 weeks so long as they are improving, and no concerns about drug resistance/adherence.

D. Once they have completed treatment and are culture negative

E. Once they have completed treatment and have a letter from a respiratory physician.

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Q29) 30 year old male on RIPE for TB develops hepatotoxicity after 2 weeks of treatment, on no other medication or past medical history and has TB meds stopped. Which would be an appropriate re-introduction regime according to the NICE guidelines?

A. Restart RHZE as normal

B. Start rifampicin at half dose, then add in isoniazid half dose at 1 week, then increase rifampicin to full dose, if remains well then increase H and then add in ZE over a further 2 weeks.

C. Start E and R, sequentially reintroduce at full dose Z and H, so are on all meds within 10days.

D. Stop R, slowly restart HZE over 3 weeks

E. Stop treatment for 1 month, then slowly reintroduce the medications.

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Q30)A 42 year old female from Ukraine is pick on the UK screening programme to have fully sensitive TB and is on RIPE treatment. At her review who notice o/e and further USS scan she has develops new lymphadenopathy. How would you alter their treatment?

A. Extend treatment by 4 months

B. Add in clarithromycin

C. Stop treatment and re-culture

D. Continue current treatment

E. Treat as MDR-TB

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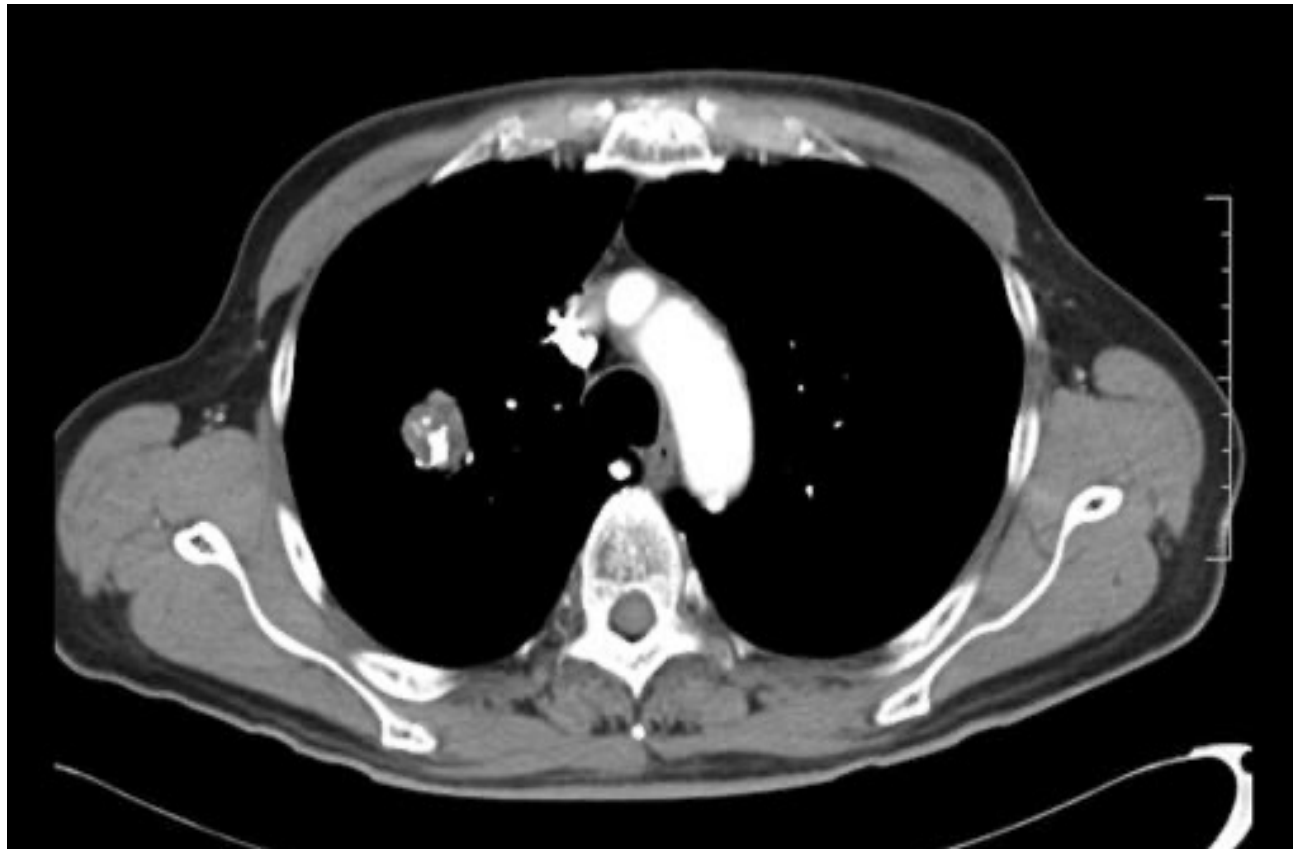
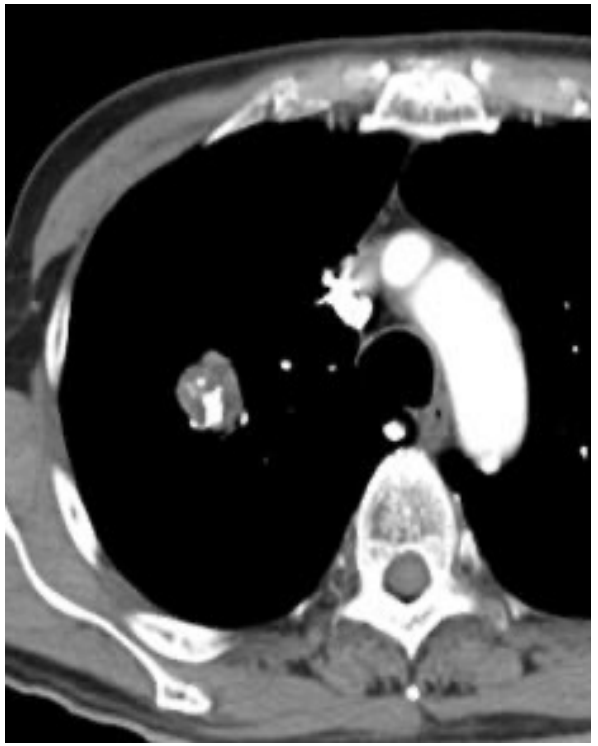
Q 31. A 55-year-old male undergoes a CT chest to further investigate a chronic cough (see below). What follow up is required?

a) No follow up required
b) Repeat CT chest at 3 months
c) Repeat CT in 1 year
d) Refer for biopsy
e) Refer for PET scan



Ans31. A 55-year-old male undergoes a CT chest to further investigate a chronic cough (see below). What follow up is required?

a) **No follow up required** – Benign features calcium
b) Repeat CT chest at 3 months – 6-8mm
c) Repeat CT in 1 year – 5mm
d) Refer for biopsy – Dependent on Herder Risk etc
e) Refer for PET scan ≥8mm



Q 32

A 55-year-old gentleman presents with cough and breathlessness. CT chest shows a 2 cm lesion in the right upper lobe, with accompanying subcarinal lymphadenopathy of 11mm and enlarged right hilar LNs of 12mm. What is the most appropriate next investigation?

a) PET-CT
b) Lung function tests
c) EBUS- FNA of nodes
d) CT head
e) CT-guided biopsy of lesion

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d) CT head

e) CT-guided biopsy of lesion

Q 33

A 60-year-old gentleman is referred with a right lower lobe lesion on CT chest. It is 2cm in size, with no local invasion. There is no evidence of any pleural effusions or distant metastases. Right hilar lymphadenopathy with hilar nodes measuring up to 12mm are noted. Biopsy of the right hilar lymph node shows features of adenocarcinoma. He is an ex-smoker with a 10-pack year history. He usually lives alone and is a retired accountant. What would be the most appropriate treatment option?

a) Chemotherapy alone
b) Chemo-radiotherapy combination
c) Surgery alone
d) Surgery with adjuvant chemotherapy
e) Neoadjuvant chemotherapy followed by surgery

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   T1-4 N0-2 (if single sone non-bulky N2) M0 = Surgery
   N≥1 = Adjuvant chemo
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Q34

Which of the following is **not** true about first-line pembrolizumab monotherapy?

a) It is used for untreated PDL1 positive tumours metastatic NSCLC
b) It requires the tumour to express at PDL1 at at least 50%
c) Patients have to be negative for EGFR mutations
d) Patients should also be positive for ALK1 mutations
e) Pembrolizumab should be stopped at 2 years of uninterrupted treatment (or earlier if disease progression)

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Q 35

What tumour mutation is crizotinib most useful for?

a) PDL1 positive tumours
b) ALK positive tumours
c) EGFR Positive tumours
d) ROS1 positive tumours
e) TP53 mutation

Ans35

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Q36

A 70-year-old gentleman is diagnosed with a 3cm right upper lobe tumour, with involvement of the right sided mediastinal lymph nodes. Biopsy has shown small cell lung cancer. What is the optimal first line treatment?

a) Chemo-radiotherapy

b) Cisplatin-based chemotherapy alone

c) Surgical resection

d) Radiotherapy alone

e) Erlotinib

Ans 36

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a) Chemo-radiotherapy – Implication is mediastinal node = N2 so not surgery, no distant spread so would fit in radical RT field

b) Cisplatin-based chemotherapy alone – If wouldn't fit in RT field

c) Surgical resection – Consider if T1-3 N0-1 M0

d) Radiotherapy alone – Always include chemo for small cell

e) Erlotinib – For locally advanced non-small cell after chemotherapy

Q37

An 80-year-old gentleman presents to ED with worsening constipation and confusion. Blood tests a Na of 135, K 4.5, Urea 6.5 Cr 90 LFTs normal Calcium 3.0 PTHrP raised. Vitamin D normal. CT head shows volume loss but no acute features. CXR shows a RLL lesion, confirmed on CT chest and thought likely to be malignant in nature. What is the most likely tumour type?

a) Squamous cell carcinoma
b) Small cell carcinoma
c) Carcinoid tumour
d) Adenocarcinoma
e) Large cell carcinoma

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Q 38

A 60-year-old gentleman is referred to the Neurologists with progressive muscle weakness, predominantly affecting his legs. Occasionally, he finds it difficult climbing stairs, but this often improves with exercise. He has also noted increased breathlessness, chest tightness and a hoarse voice. He has no other medical history of note. He recently had a viral illness and suffered from short-lived GI symptoms. On examination, palpable supraclavicular lymph nodes were noted. CT chest revealed a 5cm RML lesion with bilateral mediastinal lymphadenopathy. CT abdomen shows a lesion in the liver. He has a PS of 1 currently.

What test is likely to determine the aetiology of his leg symptoms?

a) MRI head
b) Voltage gated calcium channel antibody
c) Anti-acetylcholine receptor antibodies
d) Electromyography
e) Nerve conduction studies

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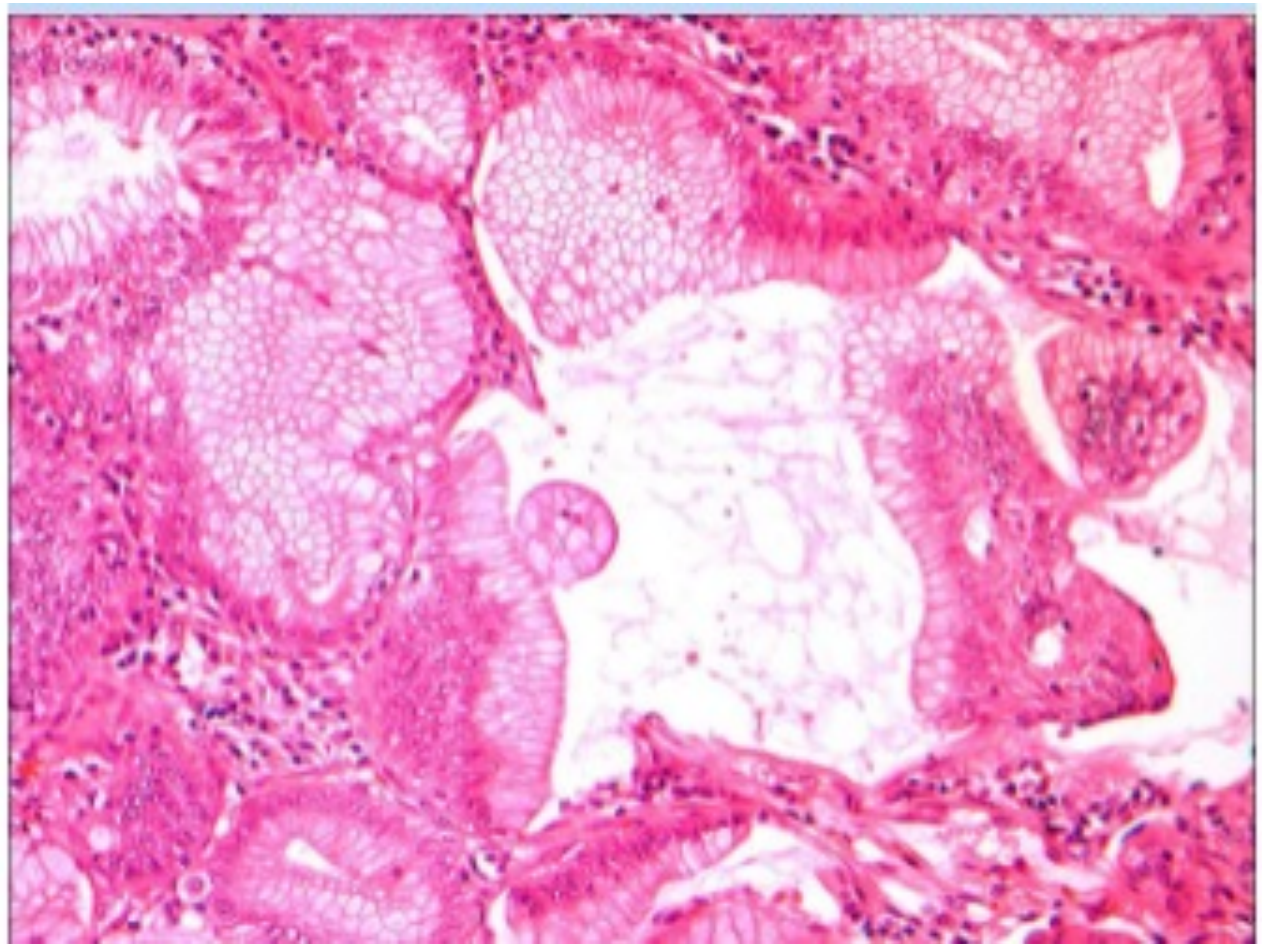
Q39) A 59-year-old woman attended the outpatient clinic with a 6-month history of cough. She had no previous illnesses of note. She had a 10 pack-year smoking history, and had given up 25 years previously. Her husband was a heavy smoker. The following biopsy is taken endobronchially. This shows typical histology for what lung condition?

A. Small cell carcinoma
B. Large Cell Carcinoma
C. Cryptogenic organising pneumonia
D. Lepidic Adenocarcinoma
E. Sarcoidosis



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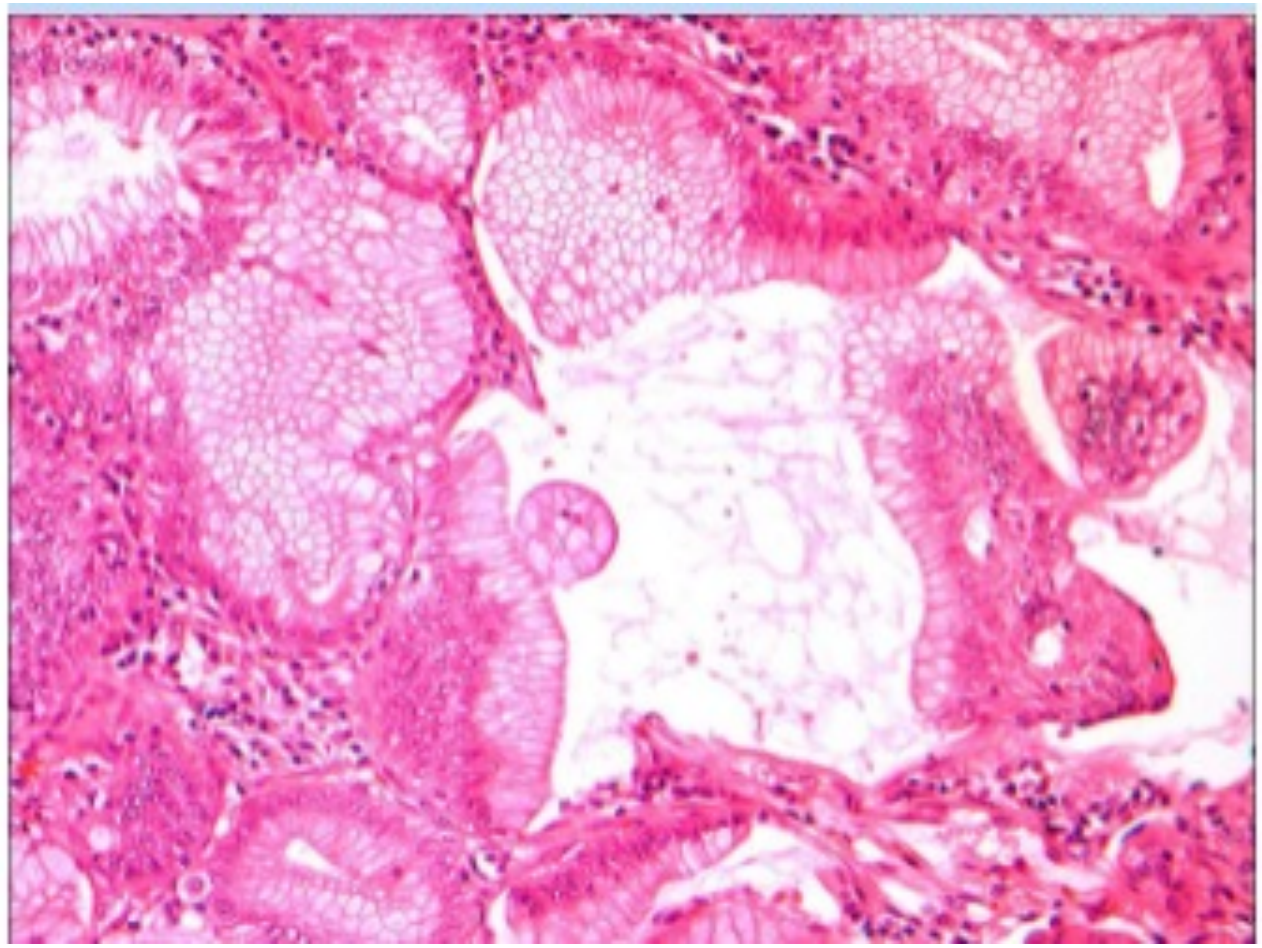
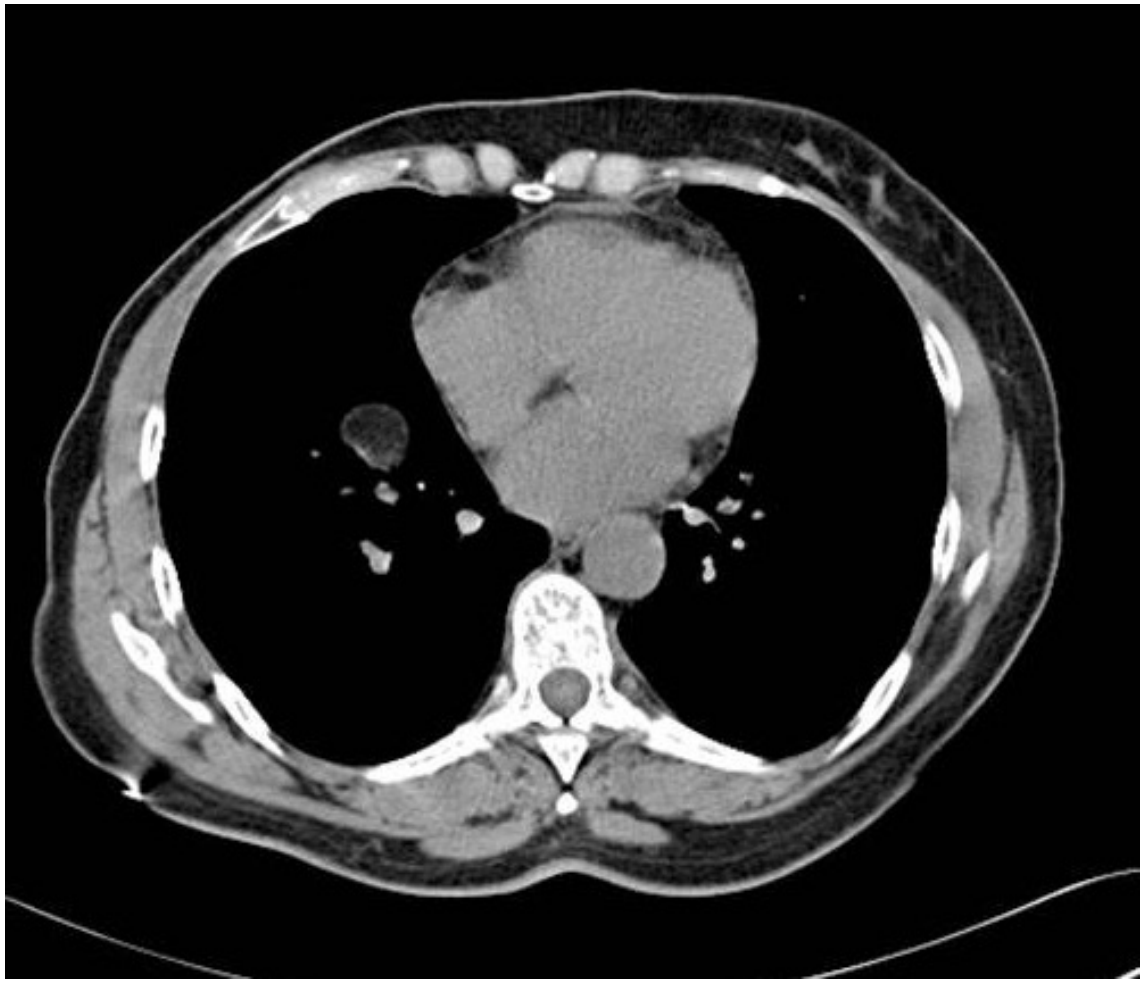


Q40) A 82 year old male presented with a cough, and the following CT scan. What is the most likely diagnosis

A. Lipoma
B. hamartoma
C. Malignant carcinoma
D. Carcinoid tumour
E. Bronchogenic cyst



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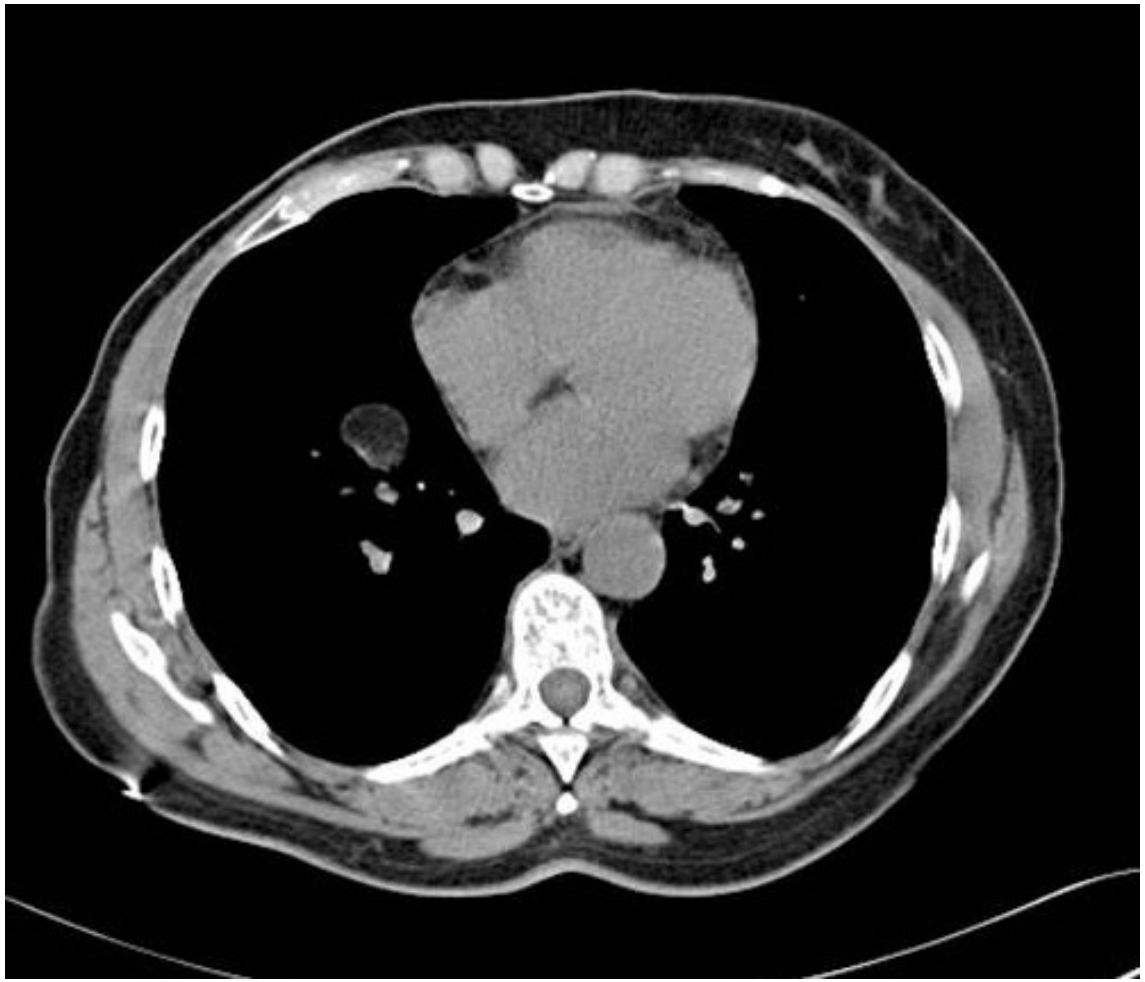
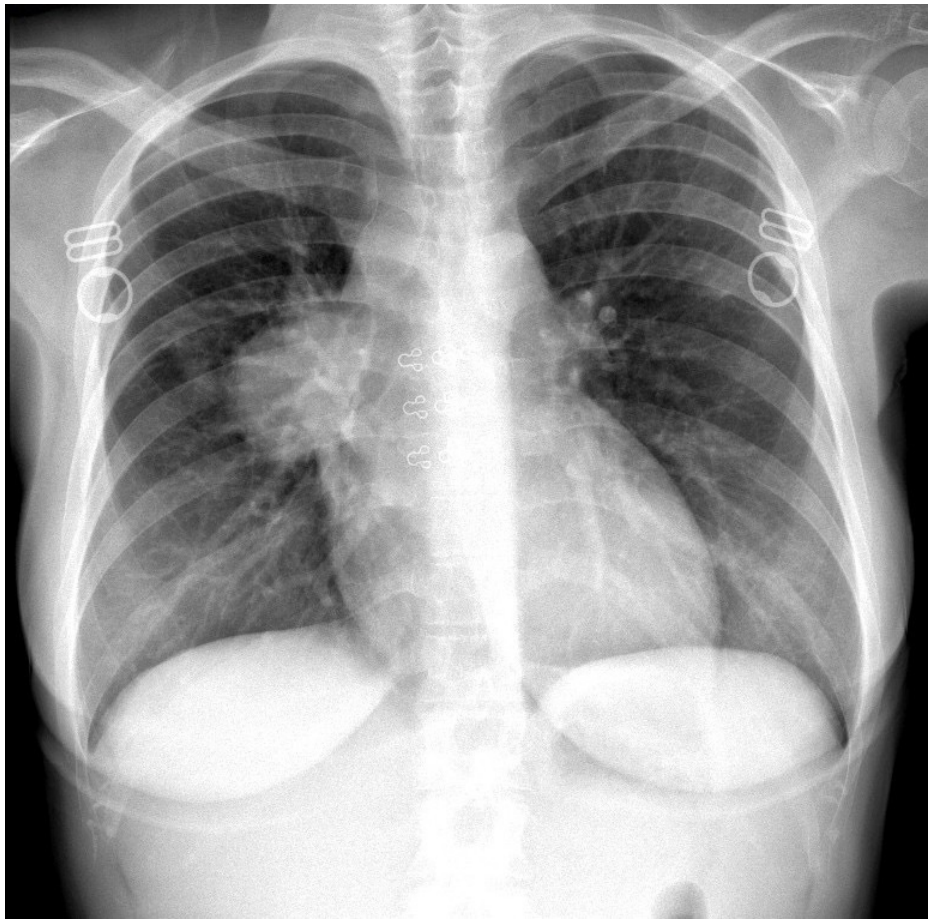


Same density are pericardial fat makes A most likely , density not same as would be in bronchial cyst

Q41

48 year old female present with WL, and fatigue. What is the most likely cause of this CXR and extra point what the radiological sign?



A. Hodgkin's lymphoma
B. Bronchogenic carcinoma
C. Sarcoidosis
D. Thoracic aortic aneurysm
E. Lipoma

Ans41

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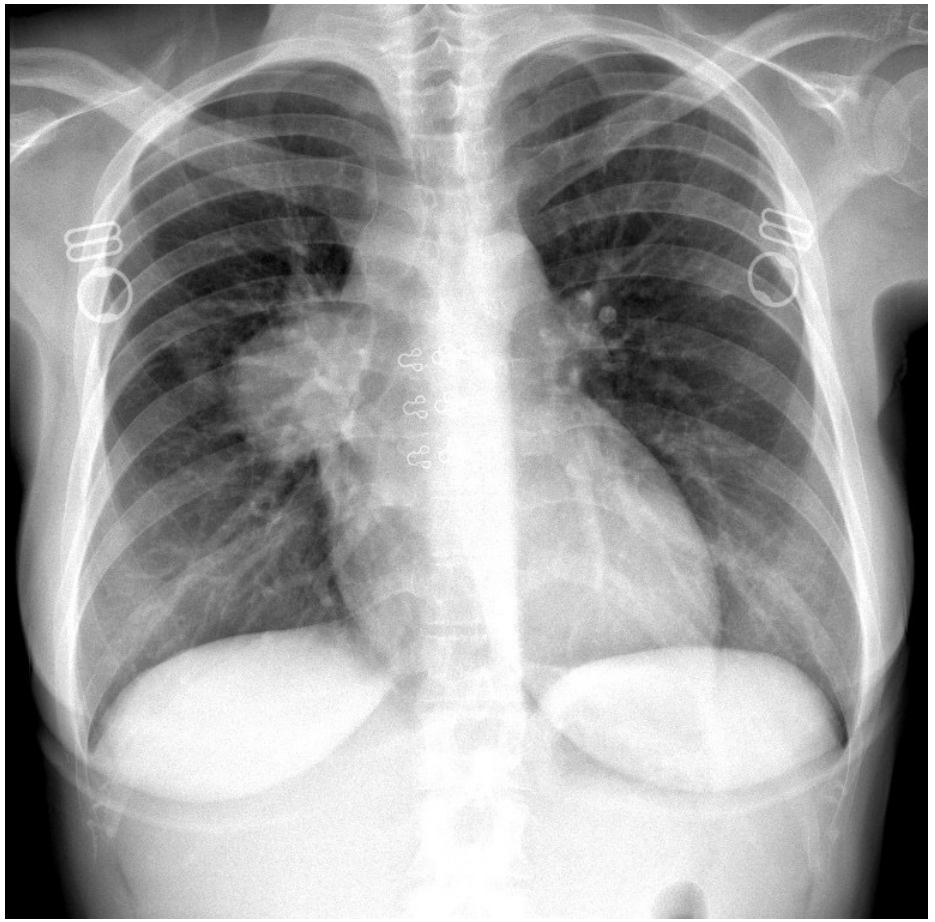

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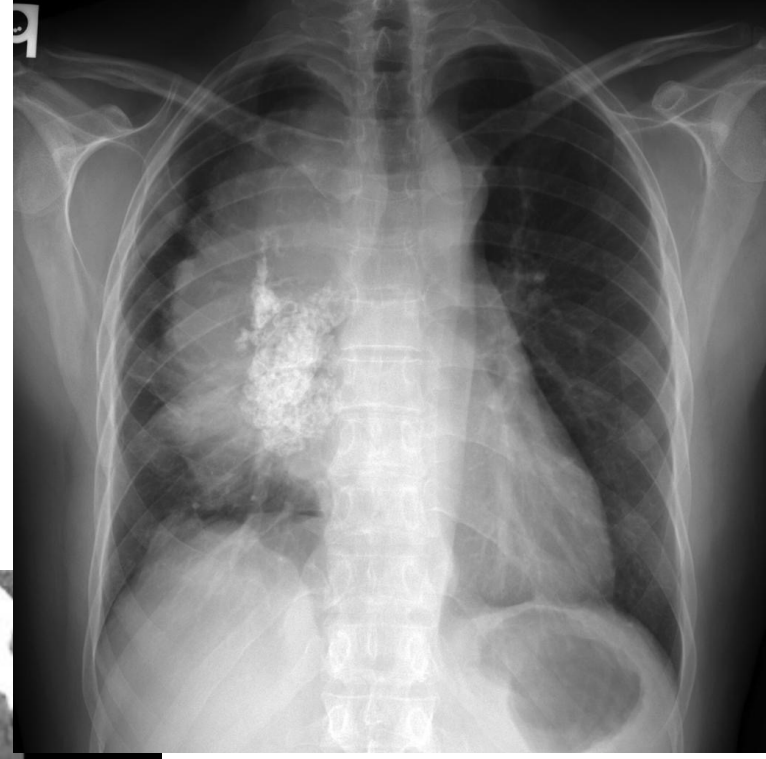
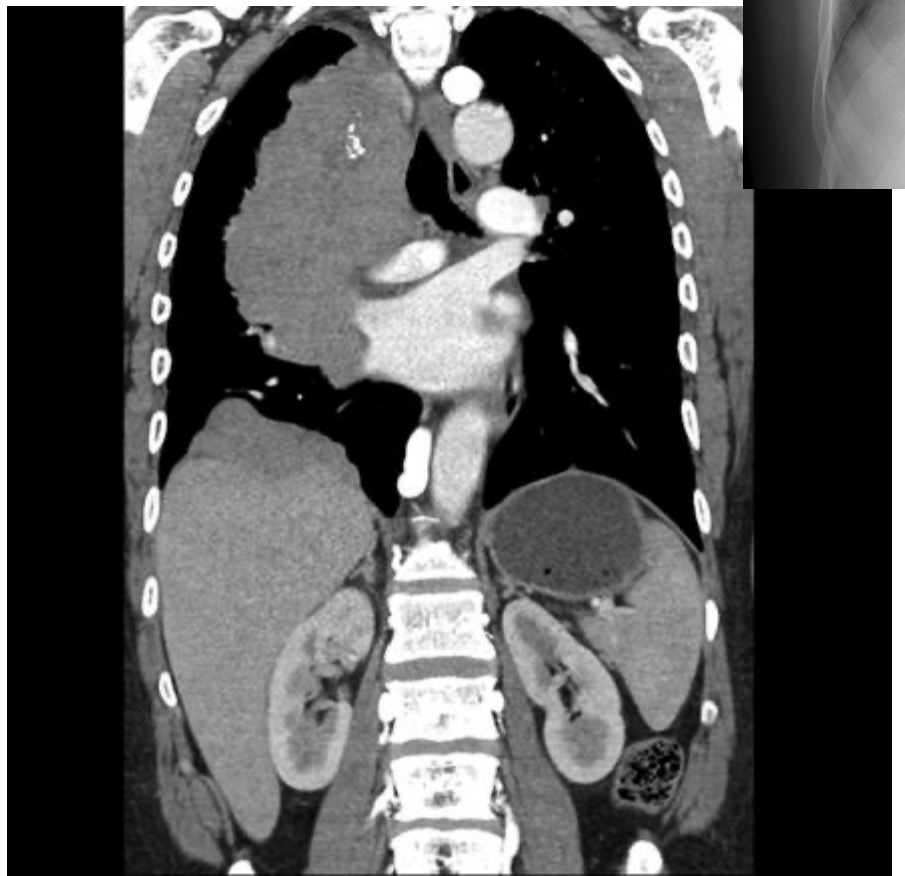
- The **hilum overlay sign** CXR outline of the hilum can be seen at the level of a mass or collection in the mid chest.
- It implies that the mass is not in the middle mediastinum, and is either from anterior or posterior mediastinum(most of the masses arise from the anterior mediastinum
- The sign refers to preserved visualisation of the hilar vessels, excluding abnormalities that localise to the middle mediastinum

Q42

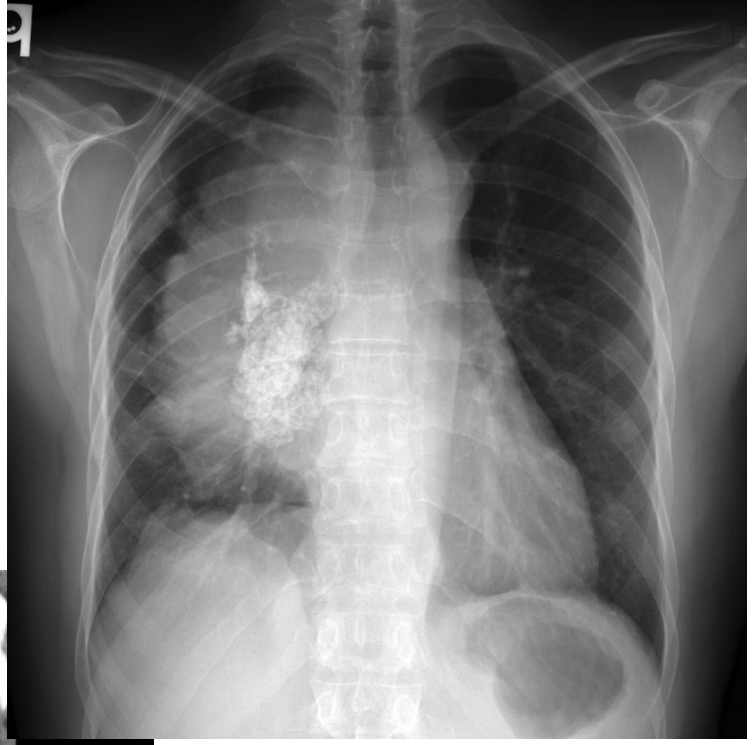
43 year old female presents, history of myasthenia. Patient presents with SVCO with cough for 3 months. Following CT and CXR. What's the diagnosis?

A. Thyroid goitre
B. Thymic hyperplasia
C. Lymphoma
D. Mediastinal germ cell tumour
E. Thymoma





Ans42



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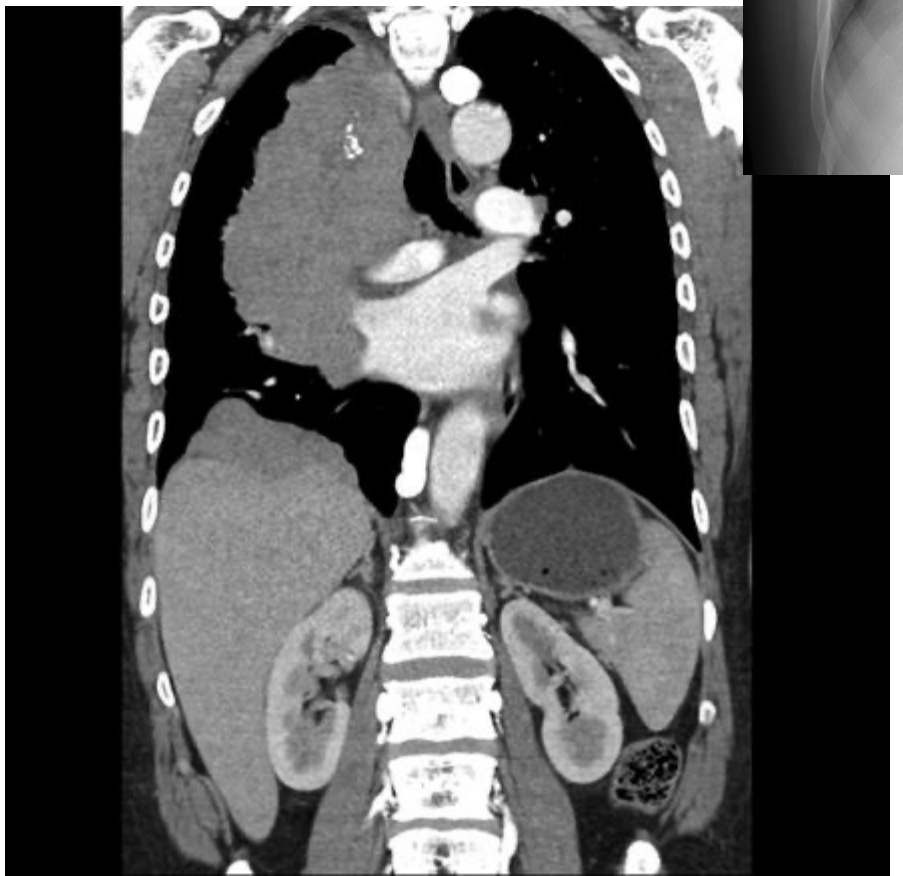

A. Thyroid goitre
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C. Lymphoma
D. Mediastinal germ cell tumour
E. Thymoma

Thymic Epithelial Tumours.

- type A: tumours (medullary histology thymomas), are typically rounded, smooth or somewhat lobulated masses of soft tissue attenuation
- type B: tumours more frequently demonstrate calcification, although calcification is also frequently seen in thymic carcinoma [6]
- type C:
  - tumours (thymic carcinoma) usually demonstrate an invasion of mediastinal fat or mediastinal structures and are usually much larger than type A or B tumours
  - mediastinal lymph node enlargement may be present although the reported frequency of this finding varies widely (13-44%) [6]

Pleural seeding is seen in invasive thymoma or thymic carcinoma.

Anterior mediastinal masses

- **5 Ts**

Mnemonic

- **T:** thymus
- **T:** thyroid
- **T:** thoracic aorta
- **T:** terrible lymphoma
- **T:** teratoma and germ cell tumours - see mediastinal germ cell tumours

Q 43

- A 55year old is brought to A&E following a RTA . He undergoes trauma CT scan which picks up a 5mm nodule sub solid nodule in the right upper lobe. He has 5 pyh of smoking. How will you manage him?

- 1) Follow up scan in 3 months
- 2) Follow up scan in 12 months
- 3) PET CT
- 4) Brocks score
- 5) Discharge

Ans 43

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- 2) Follow up scan in 12 months
- 3) PET CT
- 4) Brocks score
- 5) Discharge

Q44

- A 40 year old has a CT scan of abdomen for ?? Pancreatitis. This scan picks up left lower lobe subpleural triangular opacity measuring of 7mm. Next step
- 1) Brocks score
- 2) CT scan in 12 months
- 3) CT biopsy
- 4) Discharge
- 5) CT scan in 3 months

Ans44

- A 40 year old has a CT scan of abdomen for ?? Pancreatitis. This scan picks up left lower lobe subpleural triangular opacity measuring of 7mm. Next step
- 1) Brocks score
- 2) CT scan in 12 months
- 3) CT biopsy
- 4) Discharge
- 5) CT scan in 3 months

Q45

You see a 55 year old in RALC with new right upper lobe mass measuring 3cm and enlarged right hilar and subcarinal node along with atelectasis and right sided pleural effusion. Stage?

- 1) T2N1M0
- 2) T2N2M1A
- 3) T3N2M0
- 4) T1N1M1A
- 5) T4N2M1A

Ans45

You see a 55 year old in RALC with new right upper lobe mass measuring 3cm and enlarged right hilar and subcarinal node along with atelectasis and right sided pleural effusion. Stage?

- 1) T2N1M0
- 2) T2N2M1A
- 3) T3N2M0
- 4) T1N1M1A
- 5) T4N2M1A

Q46

What size of tumour should make u consider post operative adjuvant chemotherapy?

1. 2cm
2. 3cm
3. 4cm
4. 5cm
5. 6cm

Ans46

What size of tumour should make u consider post operative adjuvant chemotherapy?

1. 2cm
2. 3cm
3. 4cm
4. 5cm
5. 6cm

- Consider postoperative chemotherapy for people with good performance status (WHO 0 or 1) and T2b–4 N1-2, M0 NSCLC or with tumours greater than 4 cm in diameter.SO either if nodal disease present or a large tumour

Q47

A 65-year-old lady with squamous cell carcinoma is due to undergo a curative right lower lobe lobectomy.

She has a preoperative FEV1 of 1.9 L.

What is her predicted postoperative FEV1?

A. 1.0 L
B. 1.2 L
C. 1.4 L
D. 1.5 L
E. 1.6 L

Ans 47

A 65-year-old lady with squamous cell carcinoma is due to undergo a curative right lower lobe lobectomy.

She has a preoperative FEV1 of 1.9 L.

What is her predicted postoperative FEV1?

A. 1.0 L

B. 1.2 L

C. 1.4 L

D. 1.5 L

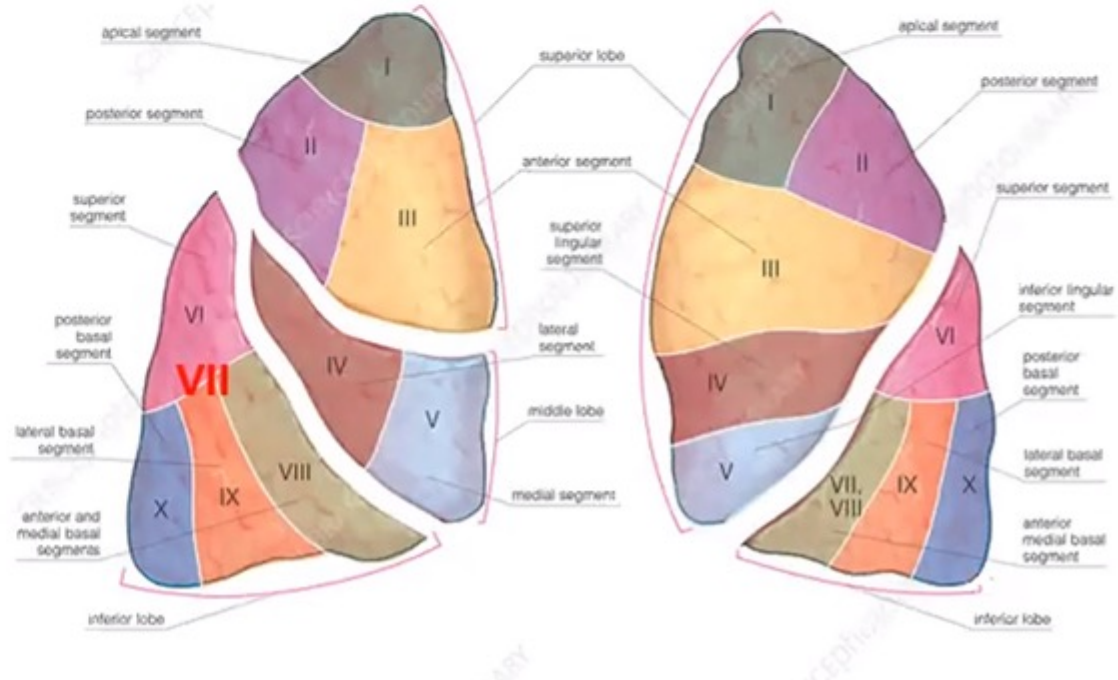
E. 1.6 L

Predicted Post-Operative Lung Function

ppoValue = Pre-Op Value/**T**otal X **R**esidual

- Pre-Op FEV1 and/or DLCO
- **T**otal Segments = 19 – "Obstructed"
  - i.e. Don't include non-functioning segments
- **R** = Residual Segments left behind post-op
  - i.e. T- Functioning segments to be resected

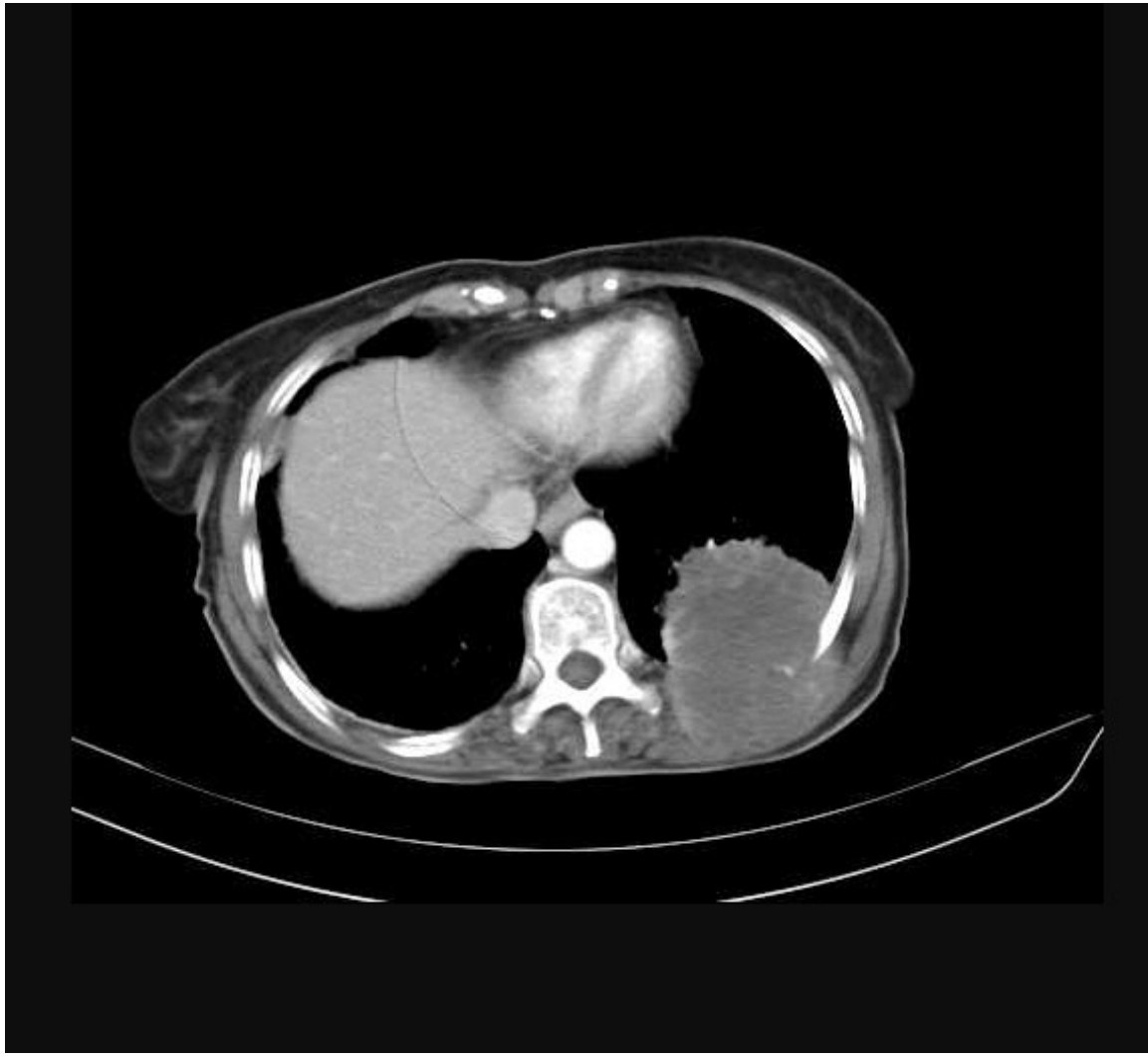
- The number of segments to be resected is:
  - RUL 3
  - RML 2
  - RLL 5
  - LUL 5 (3 upper division, 2 lingula)
  - LLL 4



Q48

A 76 year old PS 1 male, with a smoking history of 50 PYs presents with pleuritic chest pain and the following CT scan is completed showing a 6.5cm lesion. EBUS demonstrated hilar and intrapulmonary lymph nodes only to be positive. No distant metastasis are seen. What would the most appropriate staging be?

1. **T3N2M0**
2. **T4N2M0**
3. **T3N1M0**
4. **T4N1M0**
5. **T2N2M1a**



Ans48

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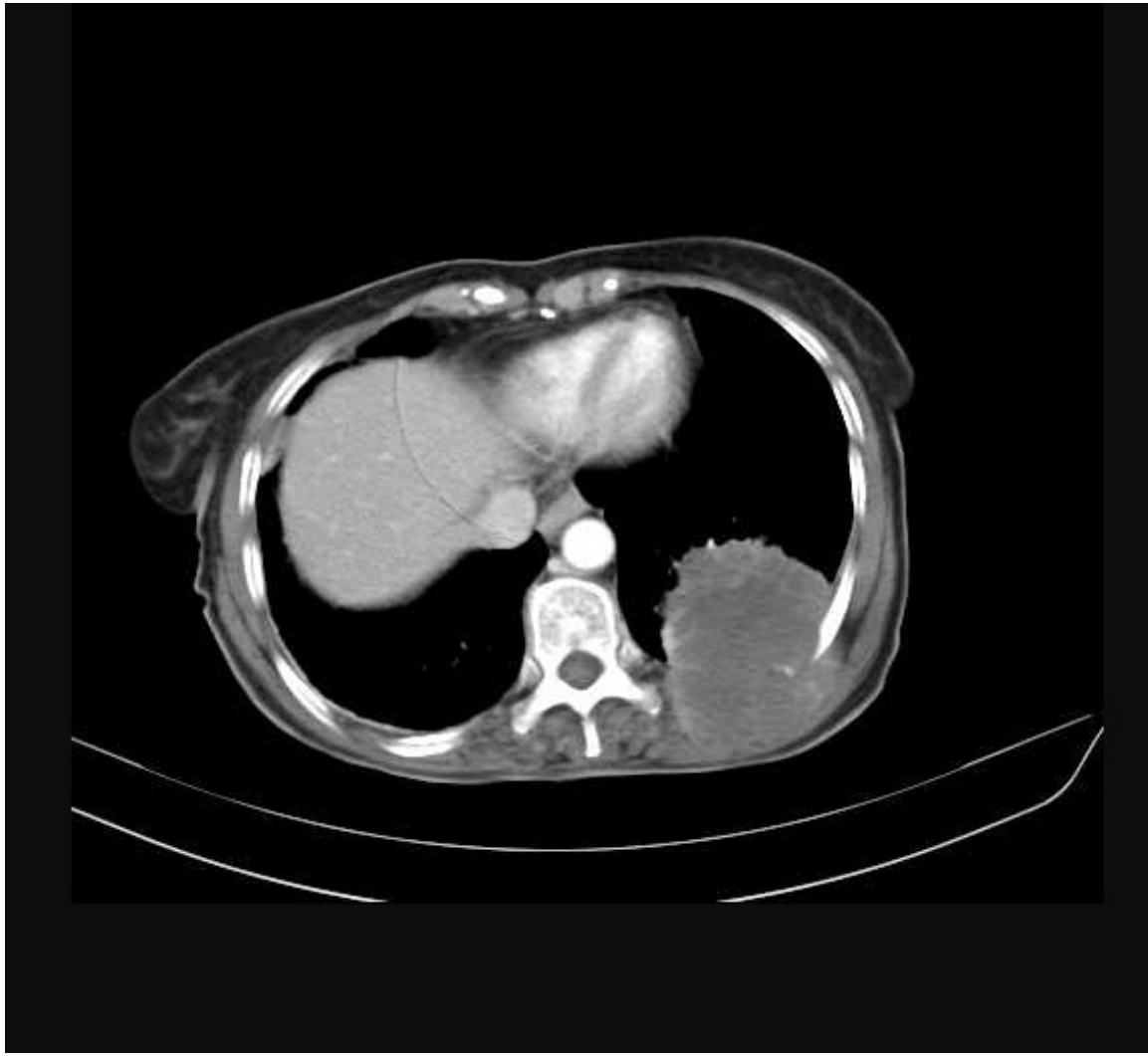

Hilar = N1
Mediastinal LN = N2

Q49

A 54 year old female of South Korean decent who has never smoked is diagnosed with a T1N0M0 lung cancer. Tumours markers are sent. Which is most like to be true for this patient?

1. EGFR mutations are more common in lung cancers affecting females, never smokers, and those of Asian-Pacific descent

2. This cancer is most likely a small cell tumour.

2. EGFR mutations are more common in lung cancers affecting male, smokers, and those of African descent

3. This lung cancer is most likely a carcinoid tumour

Ans 49

A 54 year old female of South Korean decent who has never smoked is diagnosed with a T1N0M0 lung cancer. Tumours markers are sent. Which is most like to be true for this patient?

1. EGFR mutations are more common in lung cancers affecting females, never smokers, and those of Asian-Pacific descent

2. This cancer is most likely a small cell tumour.

2. EGFR mutations are more common in lung cancers affecting male, smokers, and those of African descent

3. This lung cancer is most likely a carcinoid tumour

Tumour markers,

- EGFR mutations are more common in lung cancers affecting females, never smokers, and those of Asian-Pacific descent.
- They are predominantly present in non-small cell cancers with adenocarcinoma differentiation

Q50

- What is the first line systemic anti-cancer therapy SACT for *non squamous* advanced NSCLC with >50% PDL1 expression and no gene mutation or fusion protein?

1. Crizotinib
2. Osimertinib
3. Pemetrexed/Carboplatin
4. Pembrolizumab
5. Pembrolizumab and Pemetrexed

Ans50

- What is the first line systemic anti-cancer therapy SACT for *non squamous* advanced NSCLC with >50% PDL1 expression and no gene mutation or fusion protein?

1. Crizotinib
2. Osimertinib
3. Pemetrexed/Carboplatin
4. Pembrolizumab
5. Pembrolizumab and Pemetrexed

EGFR-TK mutation	1. **Osimertinib** / Gefitinib / Erlotinib / Afatinib 2. Progression with EGFR T790M mutation: Osimertinib 3. Progression → CHEMO: Pemetrexed/Carboplatin 4. Progression: atezolizumab, nivolumab, pembrolizumab and nintedanib with docetaxel or docetaxel monotherapy
ALK gene rearrangement	ALK = anaplastic lymphoma kinase 1. **Crizotinib**, Ceritinib, Alectinib 2. Progression → CHEMO: Pemetrexed/Carboplatin 4. as above
ROS1 positive	1. **Crizotinib** 2. Pemetrexed/Carboplatin 3. Progression: atezolizumab, nivolumab, pembrolizumab and nintedanib with docetaxel or docetaxel monotherapy
PDL1 ≥50% and no gene mutation or fusion protein	1. **Pembrolizumab** +/- combo 2. Pemetrexed/Carboplatin 3. Nintedanib/Docetaxel
PDL1 <50% and no mutation/fusion protein/biomarker	1. Pembrolizumab + Pemetrexed/Cis- or carboplatin 2. Progression: atezolizumab, nivolumab, pembrolizumab and nintedanib with docetaxel or docetaxel monotherapy

Q51

KJ has progressive motor neurone disease with very limited upper arm movement, and now using a motorised wheelchair. He lives alone, and has a QDS package of care, and has stated he does not want to "go into a home". He has been using his NIV via a nasal mask for 6 months. He has had overnight oximetry and a CBG performed. The oximetry demonstrates a saw-tooth type pattern, and mean saturations are 87%. The CBG done the morning of clinic shows: pH 7.41, pCO2 6.1, pO2 8.3, HCO3- 32. You review his NIV machine and it tells you he has a tidal volume of 850, leak of 70. His usage is excellent at 9hours per night. He is on EPAP 6 and IPAP 18. Which would be the best first line intervention to further optimise his ventilation?

A: Increase his EPAP to 8, and IPAP to 20, and review in 2 weeks with repeat overnight oximetry.

B: Change him to a full-face mask, and review in 2 weeks with repeat overnight oximetry.

C: Add in a chinstrap to his nasal mask and review in 2 weeks with repeat overnight oximetry.

D: Admit to hospital to optimise his NIV.

E: Add entrained oxygen at 2L/minute, and review in 2 weeks with repeat overnight oximetry.

Ans 51

KJ has progressive motor neurone disease with very limited upper arm movement, and now using a motorised wheelchair. He lives alone, and has a QDS package of care, and has stated he does not want to "go into a home". He has been using his NIV via a nasal mask for 6 months. He has had overnight oximetry and a CBG performed. The oximetry demonstrates a saw-tooth type pattern, and mean saturations are 87%. The CBG done the morning of clinic shows: pH 7.41, pCO2 6.1, pO2 8.3, HCO3- 32. You review his NIV machine and it tells you he has a tidal volume of 850, leak of 70. His usage is excellent at 9hours per night. He is on EPAP 6 and IPAP 18. Which would be the best first line intervention to further optimise his ventilation?

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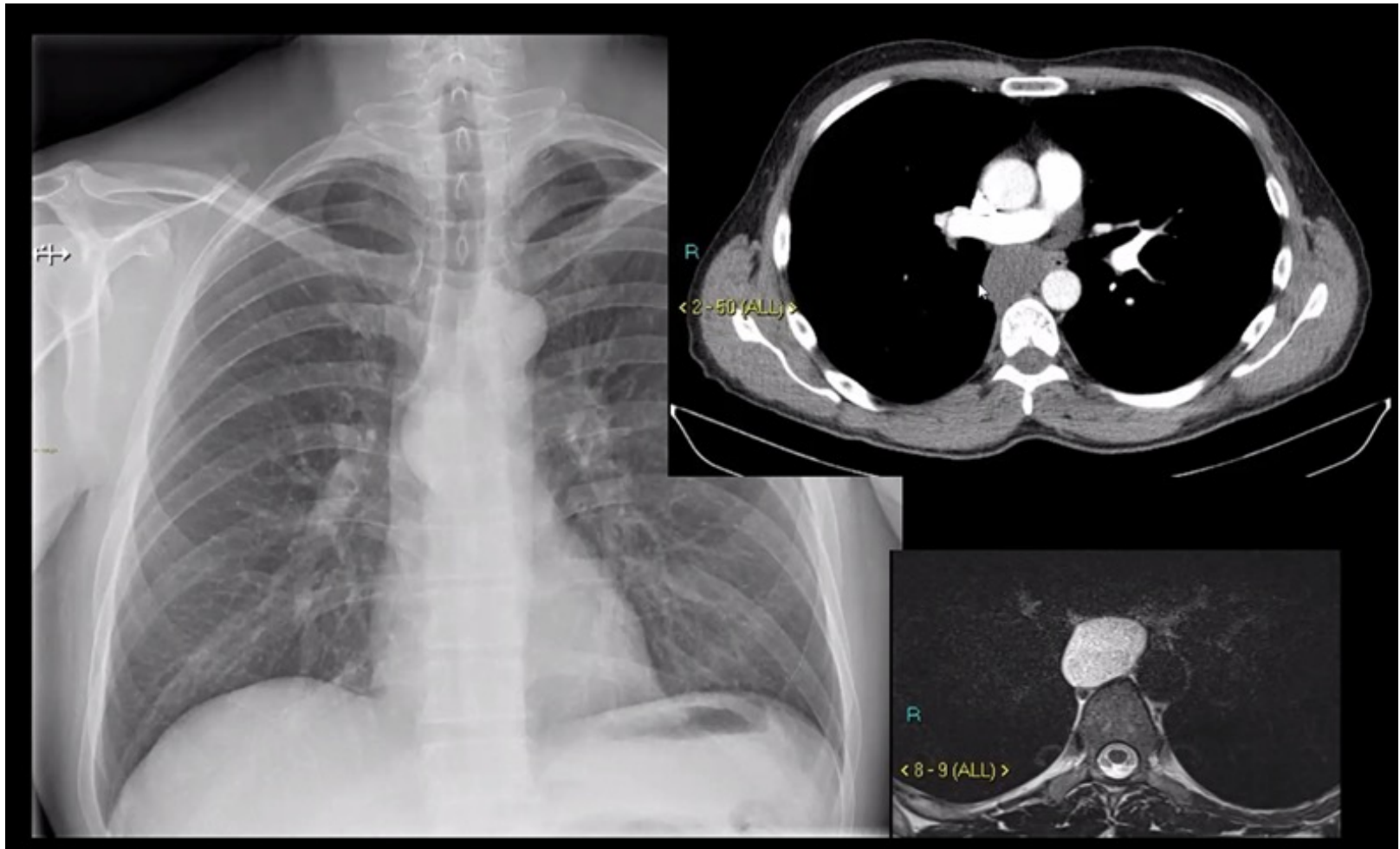
E: Add entrained oxygen at 2L/minute, and review in 2 weeks with repeat overnight oximetry.

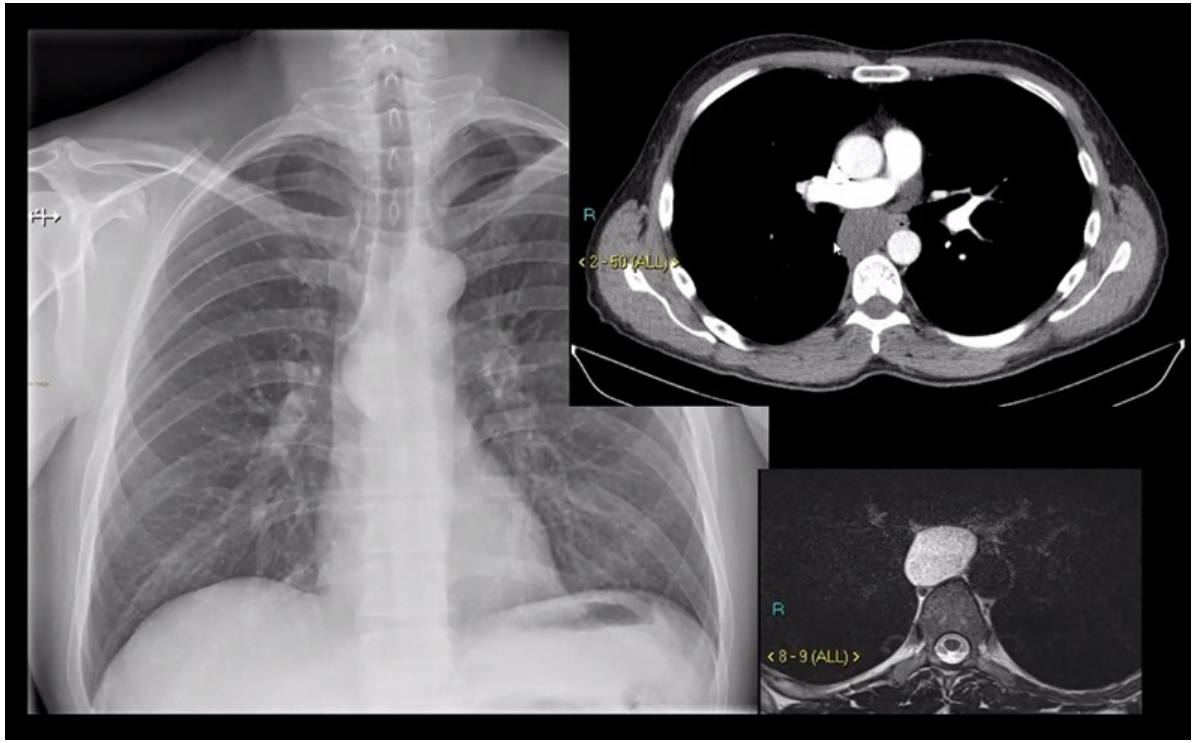
Q52) A 32 year patient from sub saharian African has a CXR as part of an occupational risk assessment prior to starting for a private health care company. What's the most likely cause of the finding found on subsequent CT imaging ?

A. Bronchogenic cyst
B. Aortic aneurysm
C. Neuroblastoma
D. Germ cell tumour
E. Lymphoma



Ans 52) A 32 year patient from sub saharian African has a CXR as part of an occupational risk assessment prior to starting for a private health care company. What's the most likely cause of the finding found on subsequent CT imaging ?)What's the diagnosis?

A. Bronchogenic cyst
B. Aortic aneurysm
C. Neuroblastoma
D. Germ cell tumour
E. Lymphoma



Q53

in unilateral diaphragmatic weakness which of the following is normal?

A. Maximal expiratory pressure
B. Maximal inspiratory pressure
C. Sniff nasal inspiratory pressure
D. VC in the sitting position
E. VC in the supine position

Ans 53

in unilateral diaphragmatic weakness which of the following is normal?

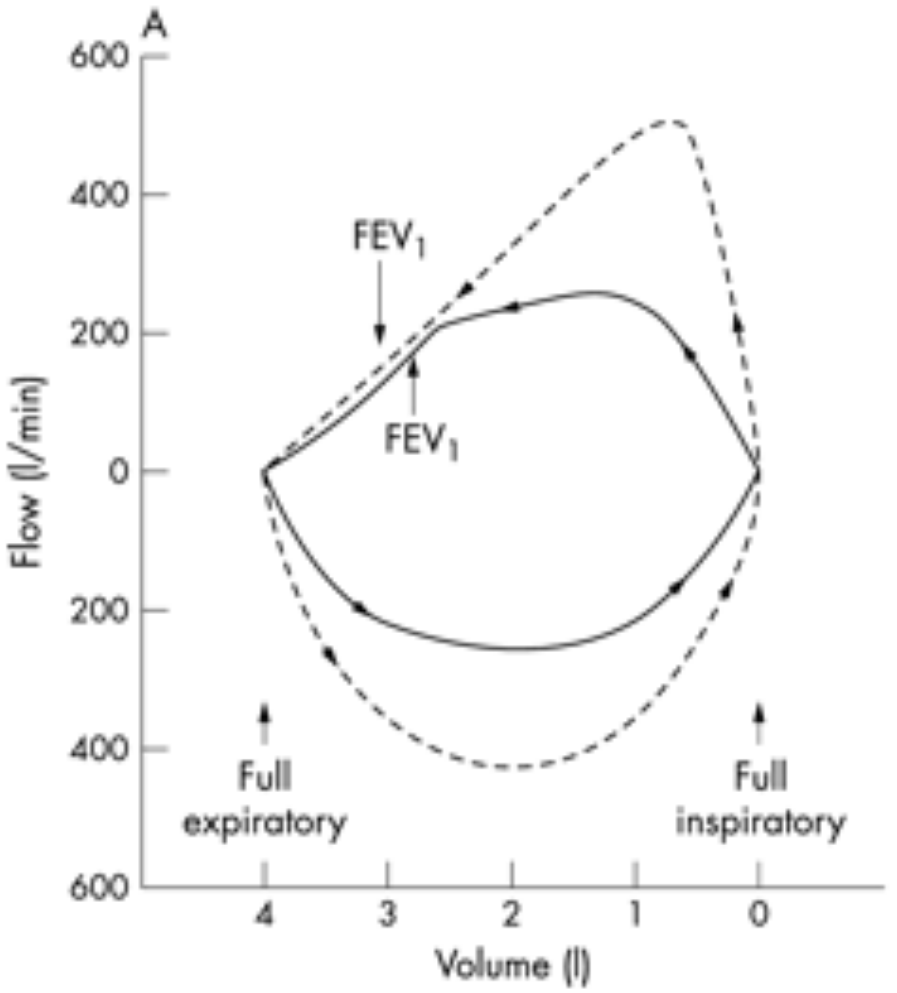
A. Maximal expiratory pressure
B. Maximal inspiratory pressure
C. Sniff nasal inspiratory pressure
D. VC in the sitting position
E. VC in the supine position

Diaphragm is only used for inspiration so doesn't effect expiratory pressure. All the rest will be affected, although VC in sitting is reduced less than VC in supine it is will reduced.

Q54) Patient presents with noisy breathing and SOB with WL. They are diagnosed with fixed airflow obstruction and you fear tracheal obstruction.

What is the most accurate Empey index for this patient?

A. >10%
B. >5%
C. <5%
D. <10%



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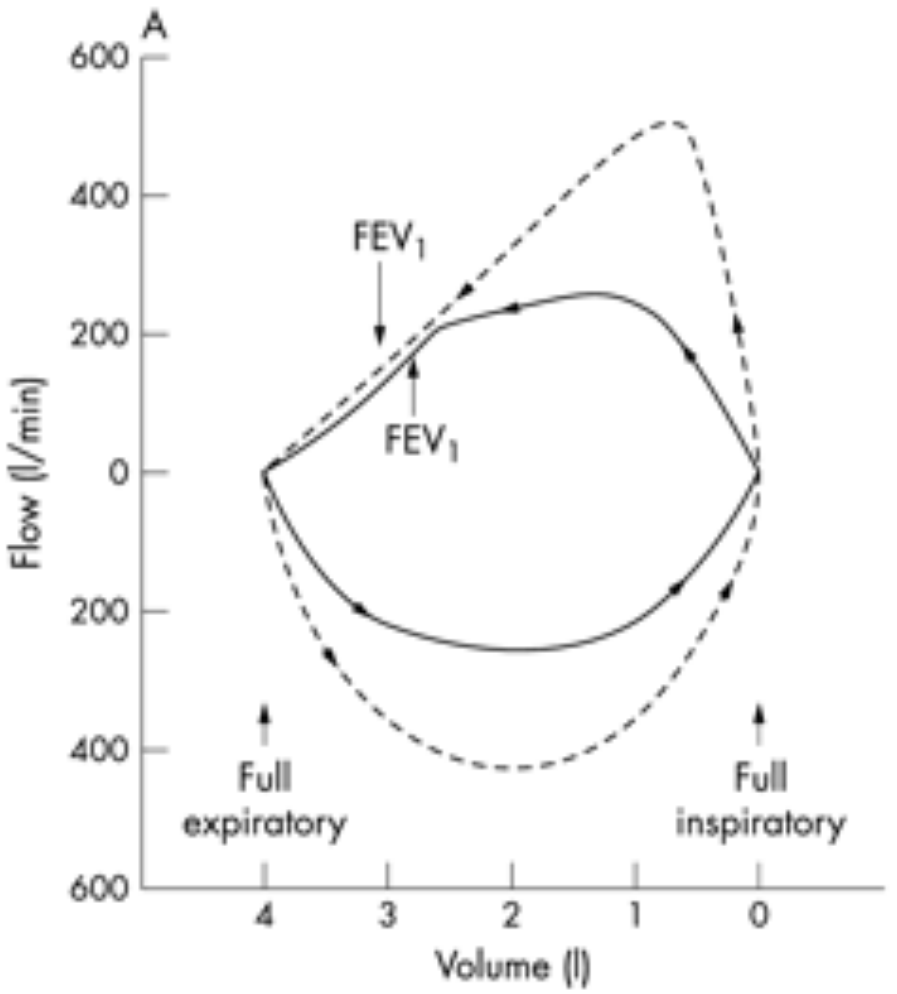

Answer explained

- The Empey index, is a way of predicting if a patient has upper airways obstruction and can be performed simply at the bedside. It is the calculation of the ratio of FEV_1 (ml):PEFR (l/min);
  - a normal person will have a ratio of less than 10
  - while a person with upper airways obstruction will have a ratio greater than 10,
  - the higher the index the more severe the obstruction. The index has been well validated on a variety of patients with upper airways obstruction but also in patients with other forms of lung disease including asthma and emphysema.

Q55

A 24 year nurse who works on the paeds ward, history of asthma, she smokes socially, presents to A&E with SOB, she is tachypnoeic, OE lungs are clear. RR is 28, BP 100/60, HR 101. You do a ABG. What is her alveolar-arterial oxygen gradient (in kPa)

A. 4.0-6.0
B. 6.1-8.0
C. 8.1-10.5
D. 10.6-12.0
E. 12.1-14

ABG

PO2 7.9 kPa (11.3-12.6)
PCO2 4 kPa (4.7-6)
pH 7.49
HCO3 22

Ans55

A 24 year nurse who works on the paeds ward, history of asthma, she smokes socially, presents to A&E with SOB, she is tachypnoeic, OE lungs are clear. RR is 28, BP 100/60, HR 101. You do a ABG on air. What is her alveolar-arterial oxygen gradient (in kPa)

A. 4.0-6.0
B. 6.1-8.0
C. 8.1-10.5
D. 10.6-12.0
E. 12.1-14

ABG

PO2 7.9 kPa (11.3-12.6)
PCO2 4 kPa (4.7-6)
pH 7.49
HCO3 22

A-a gradient:

$FiO_2 - (PaCO_2/0.8) - PaO_2$

$21 - (4/0.8 = 5) - 7.9$

21-5-7.9 = 8.1 kPa

Q56

In a normal subject at the end of a tidal breath (functional residual capacity) with their mouth open - what is the normal alveolar pressure (Palv), intrapleural pressure (Ppl) and transmural pressure? (Ptm)

A. Palv = 0cm/H20 Ppl = -7 cm/H20 Ptm = +7cm/H20
B. Palv = 7cm/H20 Ppl = 0 cm/H20 Ptm = +10cm/H20
C. Palv = 10cm/H20 Ppl = -7 cm/H20 Ptm = 0cm/H20
D. Palv = 0cm/H20 PPl -10 cm/H20 Ptm = - 10cm/H20
E. None of the above

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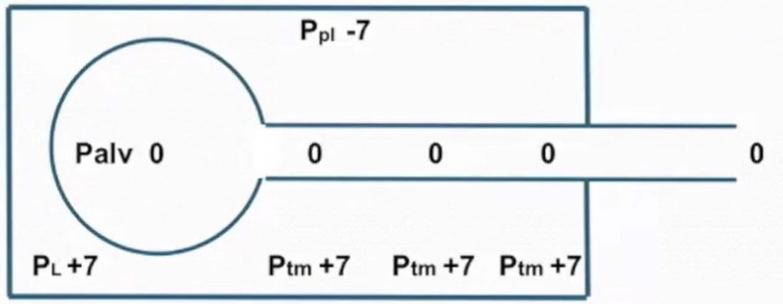
B. Palv = 7cm/H20 Ppl = 0 cm/H20 Ptm = +10cm/H20
C. Palv = 10cm/H20 Ppl = -7 cm/H20 Ptm = 0cm/H20
D. Palv = 0cm/H20 PPl -10 cm/H20 Ptm = - 10cm/H20
E. None of the above

Ans 56



Palv = alveolar pressure
Ppl = pleural pressure
P_L = lung recoil pressure (Palv-Ppl)
Ptm = transmural airway pressure

(all pressures cmH_2O)

- If you stop breathing at the end of a normal breath (functional residual capacity) with your mouth open, the pressure of air in lungs will be the same as in the atmosphere 0cm/H20

- Because your chest wall wants to spring outwards and your lungs want to collapse inwards there will always be a negative pressure between the chest wall and the lung. This is called the interpleural pressure. This is normally -7cm/H20. so if you stuck a tube in the pleural space at this point you would see water pushed a tube by 7cm.
- Transmural pressure means the lung recoil pressure. You take alveolar pressure (which is 0 as per atmosphere)- intrapleural pressure which is -7. 0—7 = +7cm/H20

Q57

Do a Qs with 75 year old pre op spiro and FEV1
FEV1 1.87 (76% predicted; standard residual -1.54)
FVC 2.2.L(80% pred; standard residual -0.24)
FEV1/FVC ratio 0.66

A. Bronchiodilator reversibility testing is required
B. The result are consistent with a diagnosis of COPD
C. Patients >75 year old have a degree of airway obstruction
D. The repeat testing should be arranged
E. The results are within the normal range.

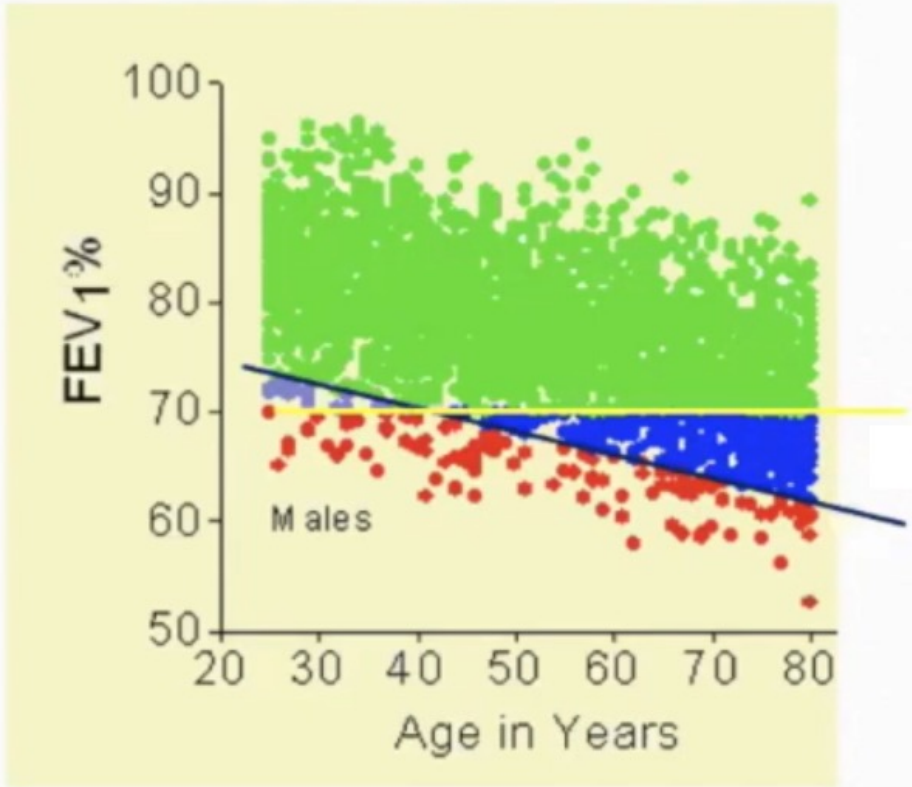
Ans 57

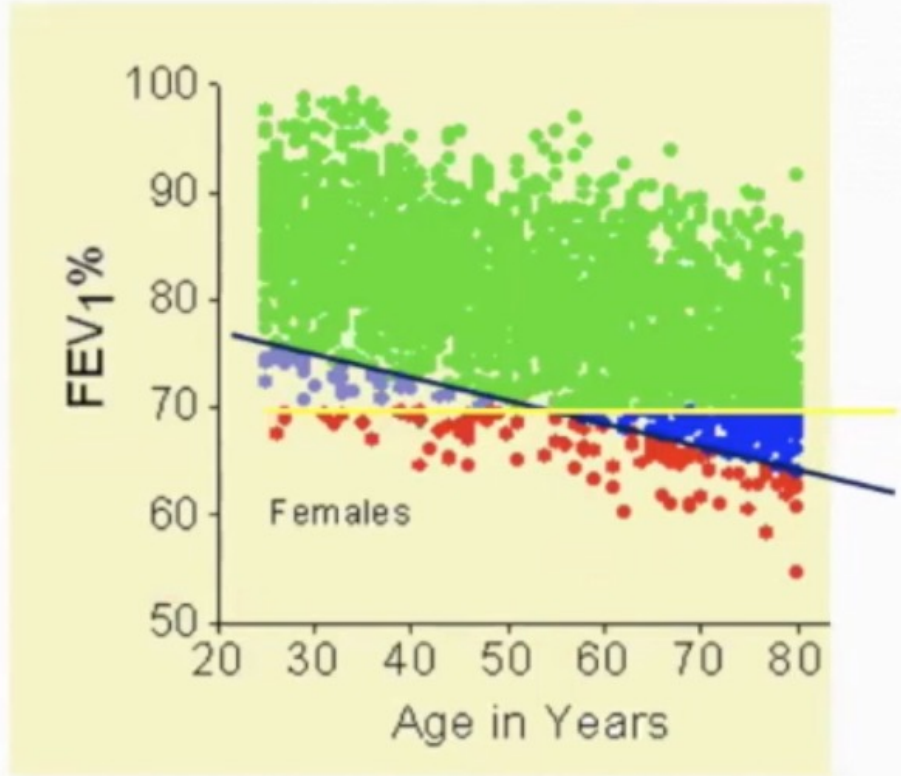
Do a Qs with 75 year old pre op spiro and FEV1
FEV1 1.87 (76% predicted; standard residual -1.54)
FVC 2.2.L(80% pred; standard residual -0.24)
FEV1/FVC ratio 0.66

A. Bronchiodilator reversibility testing is required
B. The result are consistent with a diagnosis of COPD
C. Patients >75 year old have a degree of airway obstruction
D. The repeat testing should be arranged
E. The results are within the normal range.

Problem with using fixed FEV1/FVC ratio of 0.7

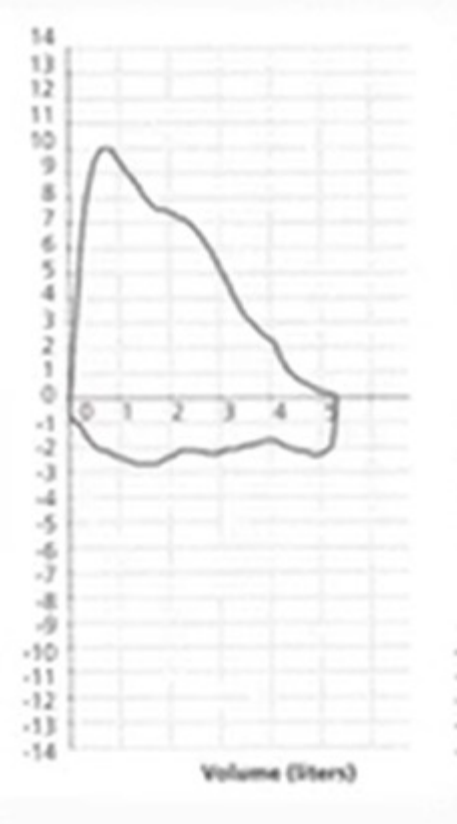
- We used to say that if u could blow 70% of your FVC in 1 sec u don't have airflow obstruction, bit random cut off,
- Problem of 0.7 as cut off in the elderly it will freq over diagnose them as obstructed.
- The LLN is down at 60% often in the elderly
- Also in young you will under diagnose airflow obstruction, so say a 21 year old blows out 71% of FVC this is too little for that age range.





Debating the definition of airflow obstruction: time to move on?
M. R. Miller , O. F. Pedersen, R. Pellegrino and V. Brusasco
ERJ September 1, 2009 vol. 34 no. 3 527-528

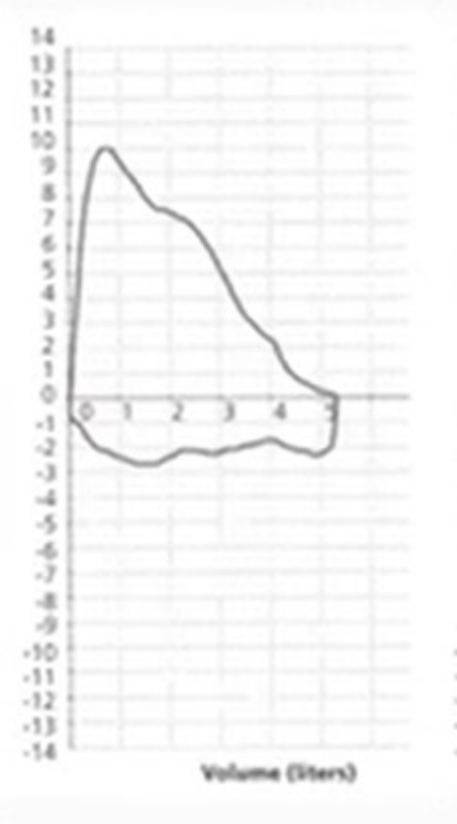
Q58



What is the most likely cause of this flow-volume loop?

A. Tracheomalacia
B. Tumour of main bronchus
C. Sub-glottic stenosis
D. Polychondritis
E. ILO /vocal cord dysfunction

Ans 58



What is the most likely cause of this flow-volume loop?

A. Tracheomalacia (variable intrathoracic obstruction)

B. Tumour of main bronchus (variable intrathoracic obstruction)

C. Sub-glottic stenosis (fixed large airway obstruction)

D. Polychondritis (intrathoracic obstruction)

E. ILO /vocal cord dysfunction = Variable extra thoracic obstruction

Variable extra thoracic obstruction as inspiratory loop reduced

Q59

A 29 year old female is diagnosed with idiopathic pulmonary arterial hypertension, mMRC 3, 6MWT 330m, CTPA/VQ NAD, CXR rel. She under goes a right heart catheter.

	Baseline	Inhaled NO
Mean right atrial pressure	7 mmHg	8 mmHg
Mean pulmonary arterial pressure	52 mmHg	28 mmHg
Mean pulmonary arterial wedge pressure	8 mmHg	6 mmHg
Mean cardiac outpatient	4.2 L/min	5.8 L/min

How would you treat her idiopathic pulmonary arterial hypertension

A. Nifedipine, increasing as tolerated
B. A nitic oxide donor
C. IV prostanoid
D. A phosphodiesterase inhibitor
E. A guanylate cyclase stimulator

Ans59

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Vasoresponder PAH

5-10% of patients with idiopathic, heritable, drug-induced PAH
Respond to inhaled pulmonary vasodilator at RHC (inhaled nitric oxide (NO) best)
Positive response ('Sitbon criteria'):

Drop in mPAP≥10mmHg to reach mPAP≤40mmHg
without a fall in cardiac output (1)

Very important to do this test at first RHC
Patients who respond acutely have better survival (2)
High dose CCBs max daily doses:

Nifedipine 120-240mg
Diltiazem 240-720mg daily
Amlodipine up to 20mg

Reassess with RHC at 3-4 months
May need to add PAH therapies later

ESC/ERS GUIDELINES

1. Rich S, Kaufmann E, Levy PS. The effect of high doses of calcium-channel blockers on survival in primary pulmonary hypertension . N Engl J Med 1992; 327: 76–81.
2. Sitbon O, Humbert M, Jaïs X, et al. Long-term response to calcium channel blockers in idiopathic pulmonary arterial hypertension. Circulation 2005; 111: 3105–3111

Q60

31 year old post partum female with SOB which was rapidly progressive over 5 month. She presented to A&E with an episode of collapse which at home, and now is mMRC 4. ECG showed RVH, HR 105, BP 98/68, Hb 139, proBNP 490, CXR clear, CTPA/VQ NAD, ECHO: TRV 4.0m/s, reduced RV function with TAPSE 10mm, small pericardial effusion, RHC below

RHC results
mPAP 35mmHg
PAWP 14
PVR 4WU

Which of the below would be the best options for managing this patient?

A. Low risk PAH: tolerate full term pregnancy and labour
B. Low risk PAH: needs urgent review in PH clinic
C. Moderate risk: needs referral to PH centre for pulmonary vasodilatory testing
D. High risk features: referral for urgent lung transplantation
E. High risk features: PH centre referral for RHC with vasodilatory testing, IV prostanoids, and PO PAH therapy as inpatient.

Ans60

31 year old post partum female with SOB which was rapidly progressive over 5 month. She presented to A&E with an episode of collapse which at home, and now is mMRC 4. ECG showed RVH, HR 105, BP 98/68, Hb 139, proBNP 490, CXR clear, CTPA/VQ NAD, ECHO: TRV 4.0m/s, reduced RV function with TAPSE 10mm, small pericardial effusion, RHC below

Which of the below would be the best options for managing this patient?

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C. Moderate risk: needs referral to PH centre for pulmonary vasodilatory testing
D. High risk features: referral for urgent lung transplantation
E. High risk features: PH centre referral for RHC with vasodilatory testing, IV prostanoids, and PO PAH therapy as inpatient.

Q61

A 39 year old homeless female died suddenly of an unknown cause, a postmortum is conducted. She was from out of the area. Some previous investigation from another hospital are obtained. HRCT include enlargement of mediastinal lymph nodes, smooth thickening of interlobular septa and centrilobular ground-glass opacities, echo revealed a TRvelocity 5.4m/s. PMHx diagnosed with HIV 5 years ago but had disengaged with services, She was also given a life limited respiratory diagnosis 2 years ago and quickly declined in this time. She was overtly cyanosed and had blue fingers in life.

Which gene is responsible for the most likely underlying cause for her PAH?

A. EIF2AK4
B. BMPR-2
C. MUC5B
D. SERPINA1
E. ADAM33

Ans 61

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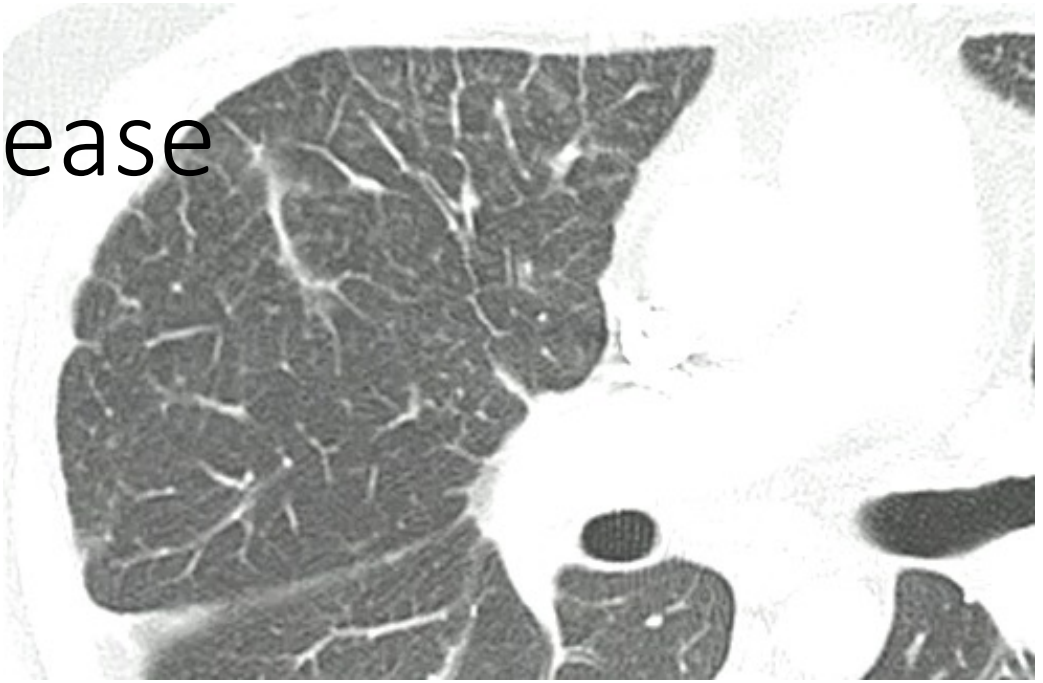
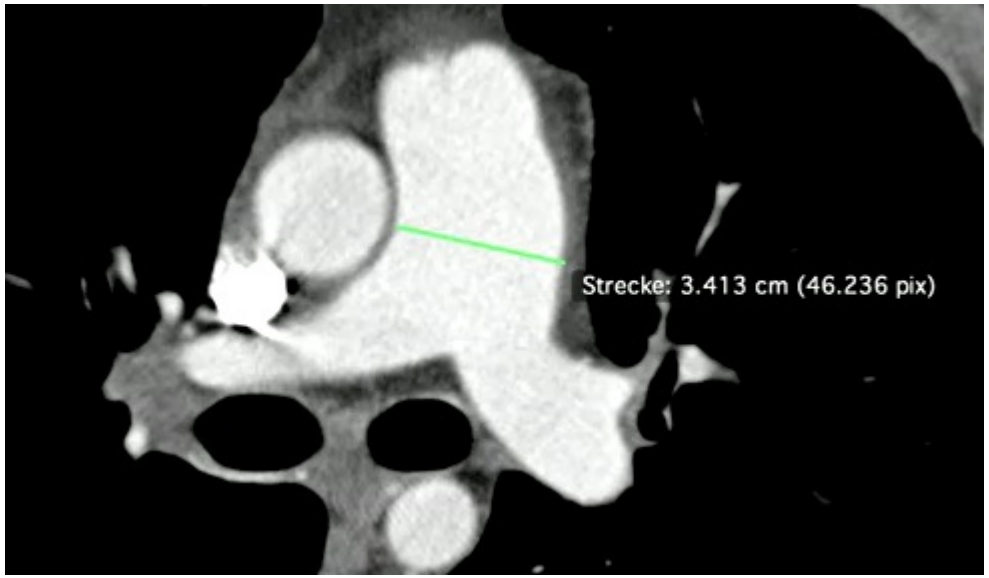
Which gene is responsible for the most likely underlying cause for her PAH?

A. EIF2AK4 veno-occlusive disease
B. BMPR-2 (PAH)
C. MUC5B (IPF)
D. SERPINA1 (alpha-1 AT)
E. ADAM33 (asthma)

Pulmonary veno-occlusive disease



- Occlusion of the post capillary venous root
- Idiopathic, stell cell transplantation, chemo
- Elevated pulmonary pressure and normal or low pulmonary capillary wedge pressure
- CT: pulmonary htn, SMOOTH thickened interlobular septa, GGO geographic or nodular)



Q62

A 32 year old Ukranian man is admitted to hospital with headache, fever, night sweats and weight loss. Normal CXR and C NAD> You suspect TB meningitis. Which of the following statements is tree?

A. You must await microbiological confirmation before you initiate anti-TB medication
B. An elevated lymphocyte count is the most common CSF finding
C. A negative PCR always excludes this diagnosis
D. CSF AFB smear is always positive in this diagnosis
E. This patient should received RIPE + dexamethasone for a full 12 month

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C. A negative PCR always excludes this diagnosis
D. CSF AFB smear is always positive in this diagnosis
E. This patient should received RIPE + dexamethasone for a full 12 month (RIPE yes but dexamethasone for first 8 weeks only)

Cerebrospinal fluid	• Clear, hyper-concentrated liquid. • Proteins > 0.40 g/l (Pandy test, Appendix 5(see page 161)). • Glucose diminished: < 60 mg/l. • CSF glucose/blood glucose < 0.5. • Between 100 and 1,000 white blood cells/ml, of which over 80% are lymphocytes. • *M. tuberculosis* can be found by CSF direct microscopy in less than 10%. • Xpert MTB/RIF has a moderate sensitivity that can be increased following centrifugation. Centrifugation is recommended if facilities for efficient and safe centrifugation exist (high-speed centrifuge and biosafety cabinet). • In HIV+ patients, cryptococcal meningitis is a concern. Perform the antigen test with cryptococcal antigen on serum and CSF (CrAgLFA).

TB MSF guidelines 2017

Extrapulmonary tuberculosis

Central nervous system tuberculosis

Individuals with central nervous system tuberculosis should be offered standard treatment with **initial phase** drugs for 2 months (see *Initial phase* for specific drugs). After completion of the initial treatment phase, standard treatment with **continuation phase** drugs should then be offered (see *Continuation phase* for specific drugs); and continued for a further 10 months. Treatment for tuberculous meningitis should be offered if clinical signs and other laboratory findings are consistent with the diagnosis, even if a rapid diagnostic test is negative.

An initial high dose of *dexamethasone* or *prednisolone* should be offered at the same time as antituberculosis treatment, then slowly withdrawn over 4–8 weeks. For additional information on corticosteroid use, see NICE clinical guideline: **Tuberculosis** (see *Useful resources*).

Referral for surgery should only be considered in individuals who have raised intracranial pressure; or have spinal TB with spinal instability or evidence of spinal cord compression.

Pericardial tuberculosis

An initial high dose of oral *prednisolone* should be offered to individuals with active pericardial tuberculosis, at the same time as antituberculosis treatment, then slowly withdrawn over 2–3 weeks. For additional information on corticosteroid use, see NICE clinical guideline: **Tuberculosis** (see *Useful resources*).

Q63

A 49 year old man presents to ED he is admitted for a uncomplication CAP which required 48 hours of IV abx, and he was then discharged. The GP called u 4 weeks later, and is worried that patient remains SOB and asks what follow up is required for this gentleman?

A. Basic repeat bloods with CRP and WBC
B. 6 week CXR
C. Reassure + No follow up required
D. Pneumonic clinic or similar follow up at 6 weeks
E. Repeat sputum culture

Ans63

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A. Basic repeat bloods with CRP and WBCs
B. 6 week CXR
C. Reassure + no follow up required
D. Pneumonic clinic or similar follow up at 6 weeks
E. Repeat sputum culture

- If <50 years and no smoking history patients do not need a follow up CXR
- Takes 3/12s to improve symptoms following severe CAP

Q64.

31 year old man presents to ED with an exacerbation of bronchiectasis he tells u he is known to be colonised with aspergillus and pseudomonas. He is currently on septrin and itraconazole prophylaxis and has regular IgG replacement therapy. He tells u he has suffered with ill health since childhood with recurrent skin and chest infection as well as atopic eczema. His bloods reveal a Hb 110, WBC 11 platelets 320, eosinophils 0.8, total IgE 700, CRP 30. You send off an immunoprofile screen but are awaiting the results. What underlying disease does this patient most likely suffer from?

A. HyperIgE syndrome
B. ABPA
C. CVID
D. Specific IgG Deficiency
E. Good's syndrome

Ans64.

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A. HyperIgE syndrome (genetic panel for diagnosis)
B. ABPA
C. CVID
D. Specific IgA Deficiency
E. Good's syndrome

Ans 64.

- Goods: thymoma with Ab deficiency, late onset combine T&B cell immune deficiency, thymectomy, recurrent sino-pul infection bronchiectasis and chronic sinusitis not uncommon, increased risk of CMV end organ disease and muco-cutaneous candidiasis, auto immune disease associated.
- Partial or specific polysaccharide Ab Deficiency: recurrent sino-pul and ear infection, pneumococcus and haemophilus, normal sr immunoglobulins, impaired response to carbohydrate based vaccine (pneumococcal vaccine) , normal response to protein based vaccines (tetanus toxoid), normal B cell count. Rx: longer courses of Abx
- CVID: recurrent sino-pul infection with encapsulated organisms – pneumococcus, haemophilus, rhinovirus. 40% bronchiectasis, commonly have autoimmune disorders IPT, AIHA, thyroid disease).
- Hyper IgE syndrome: present YOUNG with impaired IL-6 signalling, LOF of STAT3 genetics, atopic eczema, staph and fungal skin and chest infection, minimal trauma fractures, structural vascular disease. Bronchiectasis and pneumatoceles - aspergillus and pseudomonas, eosinophilias. Raised IhE, reduced class switched memory B cells and absent CD 3 Th17 Tcells.
- Selective IgA deficiency: most common, particularly in SPAIN, most asymptomatic, risk of allergic disorder, and sinopul disorders,

Q65

- What mutation is the most likely cause of XLA antibody def syndrome?

A. BTK
B. JAK 3
C. RAG-1
D. CD40LG
E. CYBB

Ans 65

- What mutation is the most likely cause of XLA antibody def syndrome?

A. BTK (XLA)
B. JAK 3 (CVID)
C. RAG-1 (severe combine immunodef)
D. CD40LG (T cell defect)
E. CYBB (chronic granulomatous disease)

Q66

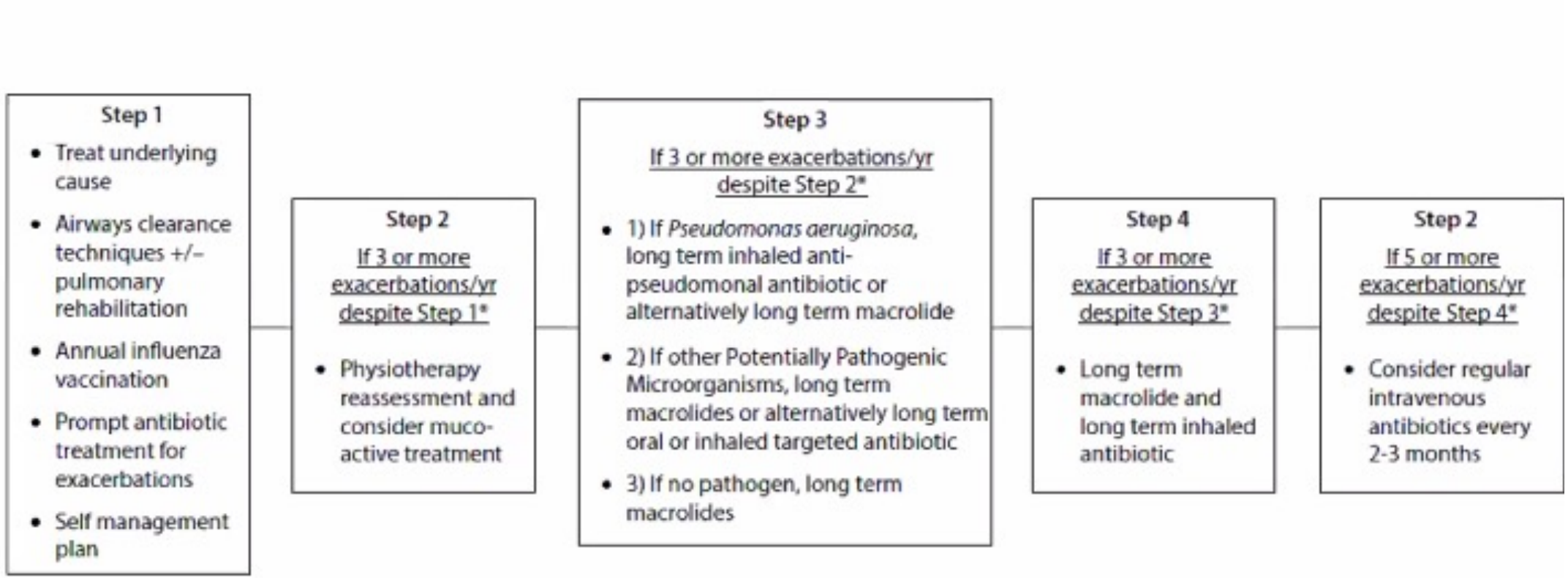
A 56 year male attends chest clinic with his son, he has an established diagnosis of bronchiectasis secondary to influenza pneumonia as a baby. He complains of increased SOB since last review and has required 4 course of antibiotics via his GP and had 2 hospital admission in the last 12 months. He has est chronic pseudomonas infection. His mMRC is 3 and his FEV1 49%, his sputum production is purulent but not increased in volume or colour from dark yellow, he gets occasional haemoptysis . Sats 93%, HR 72, BP 132/61. He is a non smoker, he has completed pulmonary rehab, he does reg chest clearance, carbocistine, azithromycin, colimycin nebs. What would the most appropriate next management step be?

A. Ref for transplantation
B. Consideration of IV cyclical antibiotics
C. Admission for acute exacerbation
D. Ref for sweat treat
E. Consider bronchoscopy

Ans66

A. Transplant: no his FEV1 is too high. Although in practice u might consider referring at this point, its not the most appropriate on the list
B. Consideration of IV cyclical antibiotics: yes, he is at maximum Rx for his bronchiectasis, if colimycin and azithromycin haven't worked and his is having more the 5 exacerbation in a year you should consider IV cyclical abx
C. Admission for acute exacerbation: sputum is unchaged, Obs stable, and this seems like a more progressive decline over months.
D. Ref for sweat treat: no other features apart from bronchectaiss to make u consider this diagnosis
E. Bronchschopy: consider this when localise disease and to rule out endobronchial lesion or foreign body

Principles of management in bronchiectasis



BTS Bronchiectasis Guideline 2019

Q67

17 year old man was admitted with 2 weeks ago with a spontaneous right sided pneumothorax which was managed conservatively. O/P review – patient is well and CXR is normal. Due to fly to France on holiday next week. He wants to know if he is safe to fly?

A. He can safely fly 2 weeks after resolution of pneumothorax
B. He can safely fly 4 weeks after resolution of pneumothorax
C. He may never fly as this pneumothorax was managed conservatively
D. He can safely fly 1 week after resolution of pneumothorax
E. He can safely fly 3 months after resolution of pneumothorax, only if repeated imagine is ok.

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Q68) You’re given the results of a recent pleural tap you did on a 62 year women with SOB and a effusion. The lymphocytes are 70% of the nucleated cell. Which of the following causes does this exclude?

1. Benign asbestos
2. Chronic TB
3. Cardiac failure
4. Rheumatoid
5. Sarcoidosis

Ans 68) You're given the results of a recent pleural tap you did on a 62 year women with SOB and a effusion. The lymphocytes are 70% of the nucleated cell. Which of the following causes does this exclude?

1. Benign asbestos (neutrophilic effusion)
2. Chronic TB
3. Cardiac failure
4. Rheumatoid
5. Sarcoidosis

Q69)Which of the below is not a characteristic sign of malignant pleural disease

1. nodular pleural thickening,
2. mediastinal pleural thickening,
3. parietal pleural thickening >1cm
4. circumferential pleural thickening.
5. pleura enhances intensely around the fluid which usually forms a lenticular opacity

Ans 69) Which of the below is not a characteristic sign of malignant pleural disease

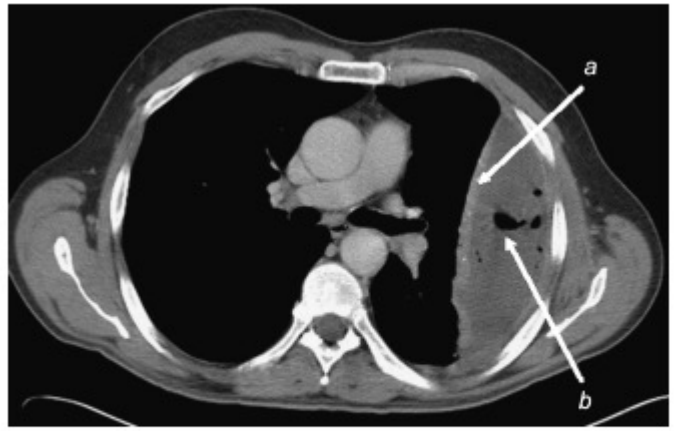


Figure 4 CT scan of left empyema with pleural enhancement (a) and suspended air bubbles (b).

Thorax 2010;**65**(Suppl 2):ii4–ii17. doi:10.1136/thx.2010.136978

1. nodular pleural thickening,
2. mediastinal pleural thickening,
3. parietal pleural thickening >1cm
4. circumferential pleural thickening.
5. pleura enhances intensely around the fluid which usually forms a lenticular opacity

This occurs in empyema as well as suspended air bubbles which imply septations

Predom effusion cell type	Lymphocytic Effusions >50%	Neutrophilic effusions	Eosinophilic effusions >10%
Why	Any long standing effusions tend to become populated by lymphocytes	This is an acute phase process.	Most commonly due to air or blood in pleural space. Non specific finding
Causes	Malignant TB Cardiac failure Lymphoma Chronic rheu Sarcoidosis Late CAGB	PE Para-pneumnic Acute TB Benign asbestos pleural effusions (this is an oddity – easy to examine on therefore)	Can occur in malignancy parapneumonic effusions, drug induced, benign asbestos, chrug-struass, lymphoma, pul infarction and parasitic disease

Q70) 20 yr old student, 24h fever, malaise, Cough, otherwise well O/E Temp 38.5^0 C, Pulse 112, BP 126/60, RR 30, CRP 278, WBC 16, Urea 7.0, Cr 62, Na 130, K 5.4. Follow CXR is done.

What is he CURB-65 score?

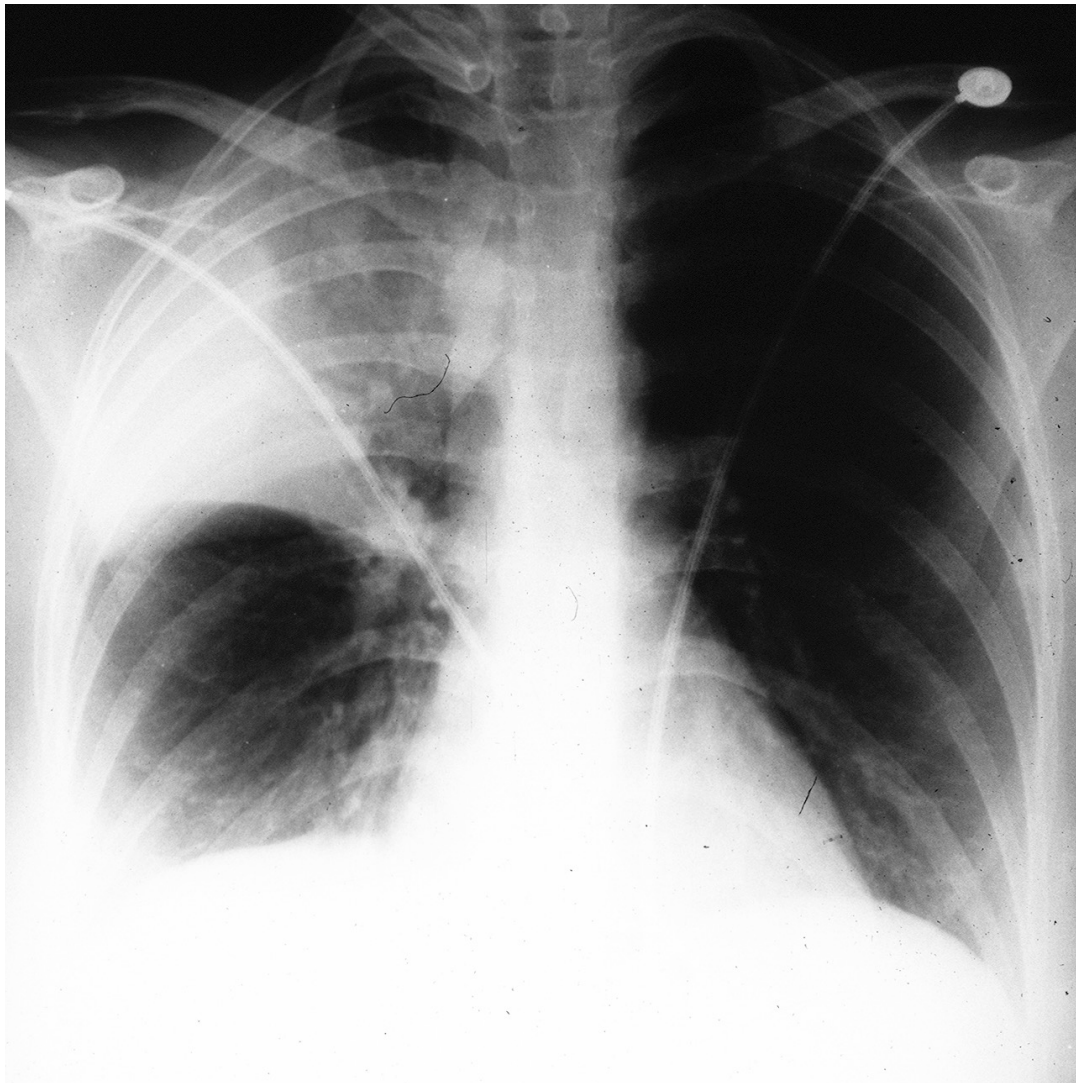
A. 2

B. 1

C. 3

D. 4

E. 0



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What is he CURB-65 score?

A. 2

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D. 4

E. 0

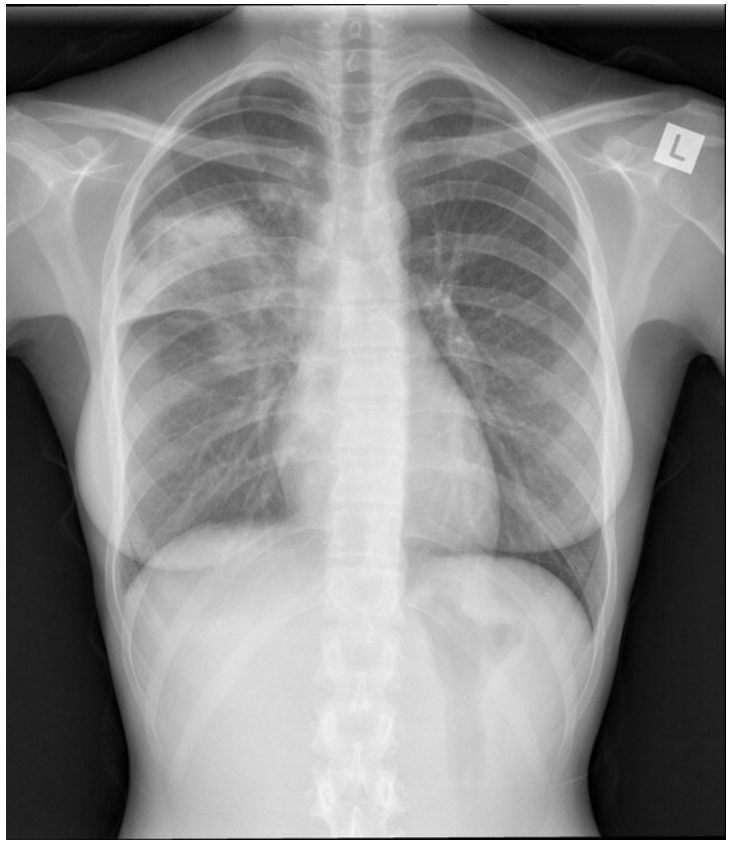
CURB-65	Clinical Feature	Points
C	Confusion	1
U	Urea > 7 mmol/L	1
R	RR ≥ 30	1
B	SBP ≤ 90 mm Hg OR DBP ≤ 60 mm Hg	1
65	Age > 65	1

CURB-65 Score	Risk group	30-day mortality	Management
0 -1	1	1.5%	Low risk, consider home treatment
2	2	9.2%	Probably admission vs close outpatient management
3-5	3	22%	Admission, manage as severe

Q71) 20 year old female is admitted with cough, purulent sputum, fever and chest pains. O/E GCS 15/15, sats 93% on air, RR 25,, temp 38.1, HR 110, BP 100/60. Recent return from SE Asia travelling during rainy season, no PMHx. O.E Right upper quadrant pain in abdomen. CXR see below. Bloods: Hb 135, WBC 15, neutron 11, eosino 0.2, platelets 560, Na 140, K 3.5, urea 8, Cr 80, ALT 70, ALP 230, Albumin 30, CRP 135.

What is the best antibiotic choice for her?

A. IV ceftazidime
B. IV amoxicillin
C. IV co-amoxiclav + clarithromycin
D. Oral doxycycline
E. Oral levofloxacin



Q71) 20 year old female is admitted with cough, purulent sputum, fever and chest pains. O/E GCS 15/15, sats 93% on air, RR 25,, temp 38.1, HR 110, BP 100/60. Recent return from SE Asia travelling during rainy season, no PMHx. O.E Right upper quadrant pain in abdomen. CXR right UL consolidation. Bloods: Hb 135, WBC 15, neutron 11, eosino 0.2, platelets 560, Na 140, K 3.5, urea 8, Cr 80, ALT 70, ALP 230, Albumin 30, CRP 135.

What is the best antibiotic choice for her?

A. IV ceftazidime
B. IV amoxicillin
C. IV co-amoxiclav + clarithromycin
D. Oral doxycycline
E. Oral levofloxacine

Melioidosis/Burkhoderia – can cause septicaemia or subacute infection, can be incubated for up to 3 weeks after travel. Single agent broad spec abx , extra pulmonary involvement. Think in AE Asia travelers.

Q72)

In May 2020 trial of steroids in severe COVID-19 pneumonitis was conducted. 1st group had standard medical treatment as per NICE guidelines at the time (n=1,005) and the 2nd group had standard medical treatment + dexamethasone + tocilizumab for 7 days (n=1,261). The primary outcome measurement was time to clinical recovery. The mean (standard error) recover time in the standard group (1) was 10.2 days and 7.2 days in the adjective steroids + tocilizumab group. Which statistical method is most appropriate for comparison of these two groups?

A) Chi-squared test
B) Kaplan Meier with log rank test
C) Linear regression
D) Mann-Whitney U test
E) Wilcoxon signed-rank sum test

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A) Chi-squared test (no: categorical analysis)
B) Kaplan Meier with log rank test (yes)
C) Linear regression (no: relationship)
D) Mann-Whitney U test (Not for time FU)
E) Wilcoxon signed-rank sum test (for for time FU)

Q73)

Mr Jones is a 58year old man who has been referred to the sleep service with daytime somnolence. He reports poor quality sleep, nocturnal wakening, and feeling "muzzy headed" when he wakes up. He has a past history of hypertension and an episode of atrial fibrillation. He has never smoked. His saturations in clinic are 92%, and his BMI is 46. On examination he has red and oedematous lower legs. His ABG done in clinic shows: pH 7.38, pCO2 6.4, pO2 8.2, HCO3- 33. He has had a respiratory sleep study done which shows an AHI of 38, mean saturations of 86%, and time less than 88% of 249mins. What would your initial management of this patient be?

A: Weight loss advice, and referral to specialist weight management service.

B: Start CPAP autoset at 8cm-14cmH20

C: Refer for mandibular advancement device.

D: Advise him to stop driving

E: Start domiciliary NIV on IPAP 24, EPAP 6.

Ans 73

Mr Jones is a 58year old man who has been referred to the sleep service with daytime somnolence. He reports poor quality sleep, nocturnal wakening, and feeling "muzzy headed" when he wakes up. He has a past history of hypertension and an episode of atrial fibrillation. He has never smoked. His saturations in clinic are 92%, and his BMI is 46. On examination he has red and oedematous lower legs. His ABG done in clinic shows: pH 7.38, pCO2 6.4, pO2 8.2, HCO3- 33. He has had a respiratory sleep study done which shows an AHI of 38, mean saturations of 86%, and time less than 88% of 249mins. What would your initial management of this patient be?

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Q74)

Your SHO asks you about the correct treatment for a patient she has seen in clinic with a GP diagnosis of COPD and she thinks sleep apnoea. The patient has an epworth score of 14 and reports daytime sleepiness. They are no longer smoking having given up 2years previous, having accrued a 30 pack year history. Their FEV1 is 62% predicted with a FEV1/FVC ratio of 80%. They have arranged overnight respiratory polygraphy and this shows an AHI of 18. Which would be the best initial management?

A. Arrange an ABG and give CPAP if not acidotic, if acidotic then admit.

B. Start CPAP 10cmH20, and repeat respiratory sleep studies on treatment.

C. Start NIV IPAP 24 EPAP 8 if ABG shows $PCO_2 \geq 7.0$

D. Start CPAP 10cmH20 if ABG shows $PCO_2 \leq 7.0$

E. Start CPAP 10cmH20 and stop inhalers as no evidence of COPD on spirometry.

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Your SHO asks you about the correct treatment for a patient she has seen in clinic with a GP diagnosis of COPD and she thinks sleep apnoea. The patient has an epworth score of 14 and reports daytime sleepiness. They are no longer smoking having given up 2years previous, having accrued a 30 pack year history. Their FEV1 is 62% predicted with a FEV1/FVC ratio of 80%. They have arranged overnight respiratory polygraphy and this shows an AHI of 18. Which would be the best initial management?

A. Arrange an ABG and give CPAP if not acidotic, if acidotic then admit.

B. Start CPAP 10cmH20, and repeat respiratory sleep studies on treatment.

C. Start NIV IPAP 24 EPAP 8 if ABG shows PCO2 ≥7.0

D. Start CPAP 10cmH20 if ABG shows PCO2 ≤7.0

E. Start CPAP 10cmH20 and stop inhalers as no evidence of COPD on spirometry.

Q75)

You are keen to ensure that more COPD patients are started on domiciliary-NIV. In which of the following COPD patients would it be most appropriate to consider DOM-NIV?

A. KW on LTOT 2L has CBG in oxygen clinic showing: pH 7.36, PCO2 7.4, pO2 8.1, HCO3 32.

B. QR: seen in oxygen clinic 2 weeks after an admission with an exacerbation of COPD requiring NIV, CBG on 1L LTOT shows: pH 7.41, PCO2 7.1, pO2 8.3, HCO3 34.

C. EF: Weaned off acute NIV for an acute exacerbation 5days ago. CBG done on day of discharge on air showed: pH 7.38, pCO2 7.3, pO2 7.1, HCO3 35

D. DE: seen in oyxgen clinic as sats of 90% in respiratory clinic. CBG shows: pH 7.43, pCO2 7.4, pO2 7.1, HCO3- 36.

E. LD: seen in respiratory clinic where he was coughing up green sputum and wheezy. CBG shows: pH 7.34, pCO2 8.3, pO2 6.8, HCO3- 29.

Ans 75)

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Q76)

IR has presented to the emergency department with worsening breathlessness and productive cough. He has a background of COPD. His initial gas showed: pH 7.29, pCO2 7.3, pO2 8.5, HCO3- 29. The repeat ABG done by your SHO after treatment with nebulisers, and steroids showed: pH 7.33, pCO2 7.1, pO2 8.1, HCO3- 30. What is the optimal initial management?

A. Start NIV at IPAP 12, EPAP 4. Repeat gas in 1 hour and increase pressures if ABG not improving.
B. Continue with nebulisers and steroids. Repeat ABG in 1hour and consider NIV if not improving.
C. Start NIV at IPAP 15, EPAP 3. Up-titrate pressures over 10-30minutes to an IPAP between 20-30.
D. Start NIV at IPAP 12, EPAP 4. Increase pressures to an IPAP of 16-20 by the first hour.
E. Refer to intensive care for consideration of invasive ventilation.

Ans 76)

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NIV SETUP

Mask
Full face mask (or own if home user of NIV)

Initial Pressure settings
EPAP: 3 (or higher if OSA known/expected)

IPAP in COPD/OHS/KS 15 (20 if pH <7.25)

Up titrate IPAP over 10-30 mins to IPAP 20—30 to achieve adequate augmentation of chest/abdo movement and slow RR

IPAP should not exceed 30 or EPAP 8* without expert review

IPAP in NM 10 (or 5 above usual setting)

Backup rate
Backup Rate of 16-20. Set appropriate inspiratory time

I:E ratio
COPD 1:2 to 1.3
OHS, NM & CWD 1:1

Inspiratory time
0.8-1.2s COPD
1.2-1.5s OHS, NM & CWD

Use NIV for as much time as possible in 1st 24hours.
Taper depending on tolerance & ABGs over next 48-72 hours

SEEK AND TREAT REVERSIBLE CAUSES OF AHRF

*** Possible need for EPAP > 8**
Severe OHS (BMI >35), lung recruitment eg hypoxia in severe kyphoscolios, oppose intrinsic PEEP in severe airflow obstruction or to maintain adequate PS when high EPAP required

NIV Monitoring

Oxygenation

Aim 88-92% in all patients

Note: Home style ventilators CANNOT provide > 50% inspired oxygen.

If high oxygen need or rapid desaturation on disconnection from NIV consider IMV.

Red flags
pH <7.25 on optimal NIV
RR persisting > 25
New onset confusion or patient distress

Actions
Check synchronisation, mask fit, exhalation port : give physiotherapy/bronchodilators, consider anxiolytic

CONSIDER IMV

Q77)

You are asked to see a 48 year old patient on the renal ward as they have found that her saturations are a bit low at 89-90%, and that she desaturates at night. She has been an inpatient for 2 weeks under the renal team for IV diuresis but they have struggled to get much fluid off and her weight has remained much the same. When assessing her you note that she is morbidly obese and seems quite drowsy, her chest is clear and she has oedema to her thighs. She has a past history of cellulitis, type 2 diabetes, AF and CKD 3. She has a 12 pack year smoking history. You ask one of the renal juniors to do a gas and this shows: pH 7.36, pCO_2 6.9, pO_2 7.8, HCO_3^- 38, FiO_2 21%. What would be the most appropriate initial management plan?

A. Start nebulisers, steroids, and antibiotics for undiagnosed COPD.
B. Start NIV: target IPAP 20-30 in 10-30minutes with EPAP 6 to 8.
C. Arrange overnight pulse oximetry as an inpatient with a plan to see her in sleep clinic if it demonstrates sleep apnoea.
D. Ask the renal team to organise an ECHO, and CTPA to identify the cause for the hypoxaemia, and review with the results.
E. Give oxygen to maintain saturations between 88-92% to aid diuresis, and advise an ECHO to look for heart failure.

Ans 77)

You are asked to see a 48 year old patient on the renal ward as they have found that her saturations are a bit low at 89-90%, and that she desaturates at night. She has been an inpatient for 2 weeks under the renal team for IV diuresis but they have struggled to get much fluid off and her weight has remained much the same. When assessing her you note that she is morbidly obese and seems quite drowsy, her chest is clear and she has oedema to her thighs. She has a past history of cellulitis, type 2 diabetes, AF and CKD 3. She has a 12 pack year smoking history. You ask one of the renal juniors to do a gas and this shows: pH 7.36, pCO2 6.9, pO2 7.8, HCO3- 38, Fi02 21%. What would be the most appropriate initial management plan?

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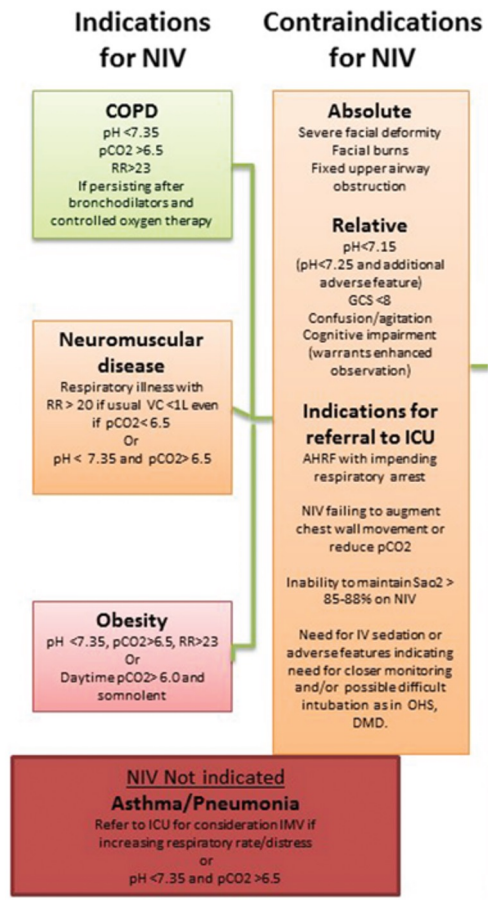
C. Arrange overnight pulse oximetry as an inpatient with a plan to see her in sleep clinic if it demonstrates sleep apnoea.
D. Ask the renal team to organise an ECHO, and CTPA to identify the cause for the hypoxaemia, and review with the results.
E. Give oxygen to maintain saturations between 88-92% to aid diuresis, and advise an ECHO to look for heart failure.


Indications for NIV
Contraindications for NIV
COPD
pH <7.35
pCO2 >6.5
RR>23
If persisting after bronchodilators and controlled oxygen therapy
Neuromuscular disease
Respiratory illness with RR > 20 if usual VC <1L even if pCO2< 6.5
Or
pH < 7.35 and pCO2> 6.5
Obesity
pH <7.35, pCO2>6.5, RR>23
Or
Daytime pCO2> 6.0 and somnolent
Absolute
Severe facial deformity
Facial burns
Fixed upper airway obstruction
Relative
pH<7.15
(pH<7.25 and additional adverse feature)
GCS <8
Confusion/agitation
Cognitive impairment
(warrants enhanced observation)
Indications for referral to ICU
AHRF with impending respiratory arrest
NIV failing to augment chest wall movement or reduce pCO2
Inability to maintain Sao2 > 85-88% on NIV
Need for IV sedation or adverse features indicating need for closer monitoring and/or possible difficult intubation as in OHS, DMD.
NIV Not indicated
Asthma/Pneumonia
Refer to ICU for consideration IMV if increasing respiratory rate/distress
or
pH <7.35 and pCO2 >6.5

Q78)

KW has recently been diagnosed with bulbar motor neurone disease and you are reviewing him in ventilation clinic. He has no other medical problems. Which of the following results would be most suggestive of a potential need to consider starting non-invasive ventilation?

A: FVC 85% predicted, SNIP 60cmH20, with no symptoms

B: FVC 75% predicted, SNIP 68cmH20, with no symptoms

C: FVC 50% predicted, SNIP 65cmH20, with no symptoms

D: FVC 48% predicted, SNIP 60cmH20, with no symptoms

E: FVC 65% predicted, SNIP 60cmH20, and needing naps in the day.

Ans 78)

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E: FVC 65% predicted, SNIP 60cmH20, and needing naps in the day

Table 1 Symptoms and signs of potential respiratory impairment

Symptoms	Signs
Breathlessness	Increased respiratory rate
Orthopnoea	Shallow breathing
Recurrent chest infections	Weak cough
Disturbed sleep	Weak sniff
Non-refreshing sleep	Abdominal paradox (inward movement of the abdomen during inspiration)
Nightmares	Use of accessory muscles of respiration
Daytime sleepiness	Reduced chest expansion on maximal inspiration
Poor concentration and/or memory	–
Confusion	–
Hallucinations	–
Morning headaches	–
Fatigue	–

Symptoms	Signs
Poor appetite	–

Table 2 Results of respiratory function tests

Forced vital capacity (FVC) or vital capacity (VC)	Sniff nasal inspiratory pressure (SNIP) and/or maximal inspiratory pressure (MIP) (if both tests are performed, base the assessment on the better respiratory function reading)
FVC or VC less than 50% of predicted value	SNIP or MIP less than 40 cmH_2O
FVC or VC less than 80% of predicted value plus any symptoms or signs of respiratory impairment (see recommendation 1.14.7), particularly orthopnoea	SNIP or MIP less than 65 cmH_2O for men or 55 cmH_2O for women plus any symptoms or signs of respiratory impairment (see recommendation 1.14.7), particularly orthopnoea
–	Repeated regular tests show a rate of decrease of SNIP or MIP of more than 10 cm H_2O per 3 months

Measure

- SpO2
- FVC/VC*
- SNIP/MIP*
- Overnight oximetry
- ABG/CBG if: Sa02 ≤92% or ≤94%

Q79)

Which of the following statements is true regarding TB infection and aircraft travel.

A. Pre-flight assessment is no longer advised for those with acute and chronic respiratory infections
B. In patients whom drug-resistant TB is not suspected and whom have completed 1 weeks of effective anti-TB treated are deemed safe to fly
C. Patients with MDR TB XDR-TB or TDR-TB must not travel on any commercial flight until that are proven to be non-infection with two consecutive negative sputum culture results.
D. Patients with Total-Drug resistant TDR-TB must not travel on any commercial flight
E. In patient with TB, whom drug-resistant TB is not suspected, are deemed safe to fly as long as they were a FFP3 mask

Q79)

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Q80

30 year old patient who has a history of asthma with multiple courses of steroids, no fixed abode at times, IVDU, presents to ED. Cachexia, cough, haemoptysis, pleuritic pain, he is found to have a soft tissue abscess on his left arm, CXR – crackles. He is confused and agitated. Pyrexia. Sputum is sent and is reported to be AFB +ve, OE: systolic murmur heard. What is the most likely cause of this patients presentation.

A. Nocardiosis
B. Actinomycosis
C. Melioidosis
D. Leptospirosis.
E. Histoplasmosis

Q80

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A. Nocardiosis (partially acid fast, aerobic gram-positive bacilli that form a branching filament, found in soil, in organic plant matter, isolated from compost and house dust, Nocardia asteroids spp complex. Soft tissue abscess./CNS involvement. Found world wide, often immunocompromised patient, esp IVDU, 10-25% of affected patient however are healthy. Rx co-trimoxazole, Rx for 6-12months)

B. Actinomycosis (actinomyces israelii anaebotic gram-positive bacilli, think of this following dental work, or aspiration, slowly progressive infection, may disseminate, neck/mandibular soft tissue abscess – discharging sinuses, more likely in men, RF: OCS, chemo, organ transplant or HIV. warn micro lab if diagnosis suspected as its culture needs special requirement, Rx: amox/clindamycin – IV initially and then PO with 6-12months of treatment given)

C. Melioidosis (burkolderia pseudomallei – aerobic gram –ve bacilli, south east asia/Australian/China/India/Thailand)IV ceftazedine, mero or imipenem 10-14 days then 12 weeks of oral doxycycline. Mortality 19-46%

D. Leptospirosis (ZOONOSIS aerobic- gram negative, transmitted from water or soil contaminated with urine of infected animals through skin abraission or mucosa, most common in tropical countries, but well describes in UK, consider in ALL patients with diffuse alveolar haemorrhage and in at risk individuals with pneumonia or ARDS. Think with fever, myalgia, conjunctival haemorrhage, aseptic meningitis, renal/hepative failure, myocarditis, ARDS, severe pulmonary disease associated with mortality 50%. Rx penincillin, ceftriazone, doxycycline. Diagnosed via ELISA/CXR or CT show patchy GGO bilateral lower lobes.

E. Histoplasmosis (endemic mycoses: fungus. Bird and bat dropping, USA Mexico, South America, Mycelial form is inhaled and develops into yeast form in the lungs, spreads then via lymphatic and T cell mediated immunity with granulomas develop. Think in US pigeon fanciers or cavers, CXR lymphadenopathy, nodules and GGO. Think with erythema multiforme, erythema nodosum, Disseminated in immunocompromised – hepatosplenomegaly, GI symptoms, HA, endocarditis, fever, WL, diffuse lung involvement.)

Answer Mock Exam 2022